HAM RADIO OUTLET®
WORLDWIDE DISTRIBUTION

Winter 2000

Communication Equipment Catalog

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with
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...leading the way.SM
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NEW
*FT-817
NEW
VR-5000
NEW
MK-V FT-1000MP

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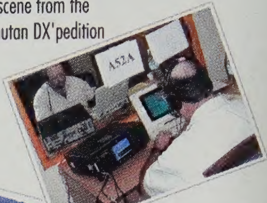
Serving You From Twelve Locations

CAPTURE THE DX WORLD

IC-756PRO: The exclusive rig of the Clipperton Island-FO0AAA and Kingdom of Bhutan-A52A DX'peditions.

Two major DX'peditions. Two remote locations. The radios? IC-756PROs. The unrivaled processing speed of a 32 bit floating point DSP provides crisp, clear reception with virtually no background noise. 41 built-in filters - front panel selectable for your convenience - let you pull out weak signals like never before. Many other features including Dual Watch, Memory Keyer, and Spectrum Scope make this rig a contester's dream. Just ask the guys who actually used them - several members of both teams were so impressed with the PRO's performance that they now have '756PROs in their own ham shacks. "It just doesn't get any better than this" - says Glenn Johnson, W0GJ.



A scene from the Bhutan DX'pedition

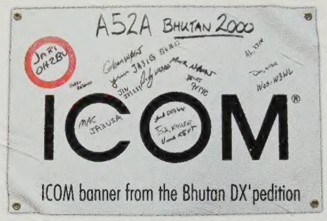
KINGDOM OF BHUTAN A52A OVER 82,000 QSO'S

"All seven of the '756PROs worked flawlessly. We ran RTTY perhaps more than 50% duty cycle, and the radios never even got warm at maximum output. The digital filter controls were so easy to adjust and switch...a contester's dream! We had seven radios, most of the time with three modes at once on any given band. There was NO interstation interference. All of our antennas (except for the 160M & 80M verticals) were within a 75 meter circle."

- A52A member Glenn Johnson, W0GJ

One of Clipperton Islands' main inhabitants

One of the DX stations set up on Clipperton



ICOM banner from the Bhutan DX'pedition

" I was particularly impressed with the '756PRO's front end resistance to overloading. I never heard intermod noises or de-sensing even with the huge pileups we generated. Several times I listened carefully for such problems but they simply weren't there. On CW, once I had picked out a station, I could run the selectivity down to 50Hz and hear ONLY the station I wanted. I have worked pileups from several DX'peditions and have never encountered a radio that held up so well."

- FO0AAA member Mike Goode, N9NS.

TIMER
HF/50MHz TRANSCEIVER
TWIN PBT
POWER
TRANSMIT
ICOM IC-756PRO
14.195.000
14.205.000
SPECTRUM SCOPE
PHONES
ELEC-KEY
MIC
SSB
CW/RTTY
AM/FM
FILTER
EXIT

The IC-756PRO's 5" TFT color display makes the information you need available at a glance. Select from four different colors & seven diferent fonts.

HF/6M • 100W • All Mode • Triple Conversion Rx • Dual Watch • 32 Bit IF-DSP • Front Panel Adjustable Noise Reduction • Audio Peak Filter • Auto & Manual Notch Filter • Twin Passband Tuning • 5" TFT Color Display Shows Operating Conditions and Spectrum Scope • CW Memory Keyer • VOX • Auto Antenna Tuner • PC Controllable with Optional ICOM Software

CLIPPERTON ISLAND FO0AAA OVER 75,000 QSO'S

Visit our redesigned website at
www.icomamerica.com

ICOM

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CONTENTS

HRO
Discount Price
$229.95

PRYME
PR-222
PRYME
PR-52

220 MHz
PR-222
$299.00

HRO
Discount Price
$219.95

6 Meters
PR-52
$299.95
Suggested List Price

These compact, rugged handhelds offer 5 watts output on 1.25 or 6 meters.

- PR-222 receives 216-228 MHz; transmits 222-225 MHz.
- PR-52 receives 40-54 MHz and transmits 50-54 MHz.
- 5 watts out with rechargeable NiCad battery included.
- CTCSS encode and decode.
- 40 memories.
- Programmable repeater shift.
- 16-button keypad with DTMF encode.
- MARS modifiable.

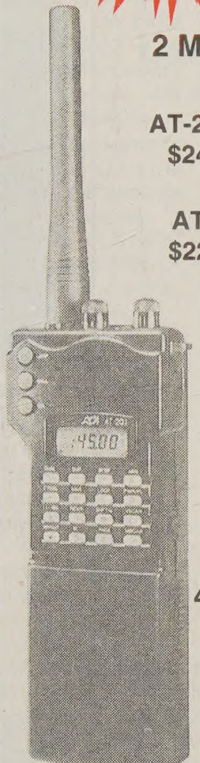
HRO
Discount Prices
AT-201 - $149.95
AT-201HP - $189.95
AT-401HP - $249.95

2 Meters

AT-201-HP
$249.95

AT-201
$229.95

Suggested List Prices



440 MHz
AT-401-HP
$279.95

- The AT-201 transmits 144-148 MHz; receives 130-179 MHz.
- The AT-401HP has a frequency range of 400-470MHz and transmits from 430-450MHz.
- Backlit key pad.
- 40 memories are soft-sectored as 20 memories in each of 2 banks. Memories store any transmit offset and CTCSS tone.
- Automatic repeater offset for quick operation. Enter the desired frequency and + or -.
- Full range or 1 MHz scanning is available.
- Memory group covers groups of 10 or all 40 memories.
- Display shows either channel or frequency.
- Can be cloned using a hardware key.
- Compatible with all AT-200 / 400 accessories.

HRO
Discount Prices
AT-600 $199.95
AT-600-HP -
$289.95

Dualband

AT-600-HP
$389.95

Suggested List Price

- Simultaneous reception on 2m/ 70cm.
- Crossband repeater function.
- Amateur transmit/ receive coverage plus extended range reception. AM receive from 108-137 MHz AM (aircraft), 138-174 MHz FM, 330-499 MHz FM, 896-999 MHz FM.
- MARS / CAP capable.
- 200 memories (120 with alphanumerics).
- Up to 5 W with 12 VDC battery.
- Clones other AT-600's and is PC programmable with optional software.
- CTCSS encoder/ decoder built-in.
- CTCSS tone scan.
- DTMF tone grab.
- Backlit keypad.

Amateur Radios
3-30

Mikes & Keyers
Accessories
31-38

SWL & GPS
Scanners
39-44

Books & CDs
Software
46-50

Tools & Helpers
71-76

Power Supplies
Batteries & Amps
77-83

Cable & Connectors
Rotators & Switches
84-88

Antennas
89-107

Towers
108-114

Store Locations
116-117

Complete Index
118

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ADI

Mobiles

440 MHz
AR-447
$299.95

2 Meters
AR-147 PLUS
$229.95

HRO Discount Prices

Our most advanced family of mobile radios have all the features expected in a modern mobile transceiver including AM air receive (AR-147 Plus only), direct frequency entry, and 81 memory channels. Includes both CTCSS and digital coded squelch.

- 3 power settings: 60 / 10 / 5 on the AR-147 Plus, 35 / 10 / 5 on the AR-447.
- Receive range: 118-171 AR-147, 400-480 AR-447 Plus.
- 9 DTMF autodialer and built-in redialer.
- Direct frequency entry using multi-function DTMF mike.
- PC programmable with optional software.

AR-247
222 MHz

$299.95
HRO Price

ADI's 222 MHz single band mobile radio, the ADI AR-247, has a collection of features that will make operation on the 222 MHz band a lot of fun!!

- Extended receive capability of 118-180 MHz in FM and AM modes.
- Three power settings, 50, 10 and 5 watts.
- 80 memory channels plus a call channel.
- CTCSS encode and decode built-in.
- Auto repeater offset.
- 9 DTMF AutoDial memories plus a built-in redialer for autopatch.
- Dual frequency watch.
- User programmable time out timer.
- Programmable band and memory scan modes.
- DTMF paging.
- Direct frequency entry using the multifunction DTMF microphone.
- Auto power off.
- Frequency or channel display.

PRYME®
Radio Products

Family Radio

ClearConnect
$219.95
HRO Price

SportConnect
$199.95
HRO Price

Family Radio Plus
PR-460

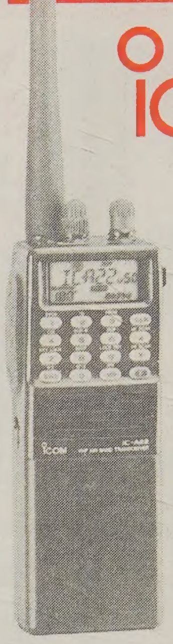
Most Family Radio Service transceivers have limited range because they provide only one-half watt output power. The SportConnect™ and Clear Connect™ radios from Pryme provide 4-watts output power with a transmit range of up to 5 miles.

These radios operate on frequencies within the General Radio Service (GMRS). A license is required for using the radios but obtaining a GMRS license is easy and can be done on-line. One license covers you and everyone in your immediate family.

- 4 watts output power in three user selectable power settings (4, 2, or 1 watt).
- 38 CTCSS Interference Eliminator Codes which are user programmable.
- One touch access to the 462.675 emergency channel.
- Channel scan, dual watch and priority scan modes.
- Low battery warning.
- 8 simplex channels on Sport Connect.
- 23 channels on ClearConnect for simplex and repeaters.

NAV / COM

ICOM



IC-A22 Super Compact Portable NAV / COM

Call for HRO Prices

This compact, rugged aviation transceiver has excellent audio quality on the COM side and a VOR transceiver with CDI function on the NAV side. NAV features include:

- Display of radial heading TO and FROM VOR stations.
- CDI shows deviation from course.
- 200 navigation channels.
- ABSS identifies direct radial to a VOR.
- Semi-duplex allows you to contact flight services while receiving VOR signals.

Ergonomic keypad controls all functions. A rotary control allows quick tuning of all frequencies and memories. This radio has an alpha numeric display, built-in sidetone function, 50 memories, one-touch selection of the 121.5 MHz emergency frequency, scanning, VHF marine weather reception; 12-15 VDC power operation with optional power cord; 5 W output.

IC-A4
Airband Portable COM

The IC-A4 is a low cost, light weight and compact portable for providing reliable communications for pilots. The channel name function allows you to assign 5-character names to each channel. Transmits and receives on all 760 aviation channels. Has 2 scanning modes.

IC-A3
Airband Portable COM

This compact 760 COM channel airband transceiver provides easy access to all functions via its ergonomic keypad. A rotary control tunes frequencies and memories.The rugged IC-A3 has an alpha numeric display, built-in sidetone function, 50 memories, one-touch selection of 121.5 MHz emergency frequency, scanning, VHF marine weather reception; 12-15 VDC power operation with optional power cord.

ALINCO HANDHELDS

Single Band

Special!!
$84.95
Each

DJ-S41T
440 MHz - $149.95

DJ-S11T
2m - $149.95

Suggested List Prices

These tiny communicators cover 2m or 440 MHz. Use from your car with the optional EDH-18.

- Transceive on 144-148 MHz (DJ-S11T); 425-450 MHz (DJ-S41T).
- 20 memories plus call channel will hold frequency, 50 CTCSS tones and offset.
- Less than 5" H x 2.25" W.
- Use 3 AA or NiCad pack.
- Power out 340 mW.
- Large lighted display.
- Pivoting antenna.

DJ-196T
2m – $189.95

DJ-496T
440 MHz – $199.95

HRO Prices

NEW!

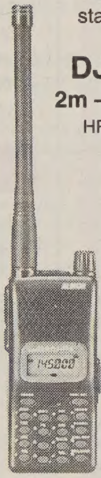
These HT's feature alphanumeric display, back-lit keypads, 41 memoies, 5W out with standard EBP-48N battery, CTCSS encode/decode, DCS and 4 different tone bursts, theft alarm.

DJ-280TH
220 MHz
$199.95
HRO Price

This rugged, reliable HT covering the 1.2m band (222-225 MHz) is easy to use. Advanced functions provide maximum performance flexibility.

- Accepts 13.8 VDC with optional EDH-12.
- Power output is 5 W.
- Illuminated display.
- Non-standard repeater offset capable.
- VFO and memory modes.
    - 10 memories standard.

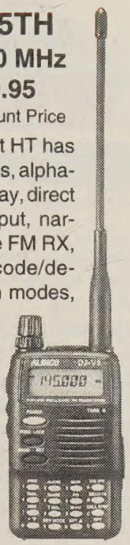
DJ-195T
2m – $159.95
HRO Price



This 2m HT outputs 5 watts with the standard battery. It has: CTCSS encode/decode, alphanumeric display, 40 memories, 13.8 VDC direct input, direct frequency input, S-meter, autodialer, cable cloning, theft alarm and experimental mosquito repeller.

Dual-band

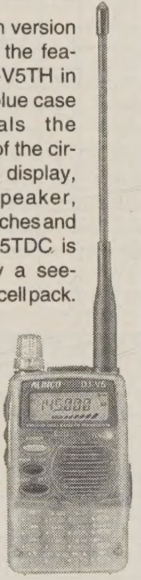
DJ-V5TH
2m / 440 MHz
$279.95
HRO Discount Price



This compact HT has 200 memories, alphanumeric display, direct frequency input, narrow and wide FM RX, CTCSS encode/decode, 5 scan modes, auto-dialer, and an SMA antenna connector. The receiver can be expanded to 76~999.995 MHz (cellular blocked).

DJ-V5TDC
$219.95

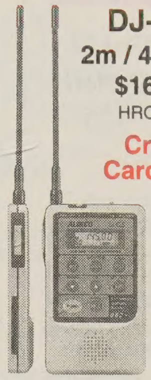
DJ-V5TDCH
2m / 440 MHz
$319.95
HRO Discount Prices



See-through version includes all the features of DJ-V5TH in a clear ice blue case that reveals the placement of the circuit board, display, lighting, speaker, keypad, switches and more. DJ-V5TDC is powered by a see-through dry-cell pack. The DJ-V5T DCH comes with a black NiCd battery pack, see-through dry-cell pack and charger.

DJ-C5T
2m / 440 MHz
$169.95
HRO Price

Credit Card Size



Enjoy this compact 2m/440 MHz dual band with standard or non-standard splits, AM air band receive, CTCSS encode and decode, and an internal speaker. Charge the lithium ion battery in 2 hours with the snap-in charger.

HRO Discount Price $289.95

DJ-G5TH
$481.95
Suggested List Price

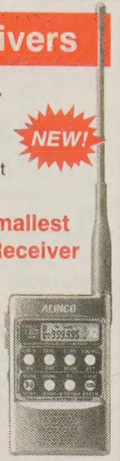
This rugged, mini-sized, rig is loaded with features: full-duplex, cross-band repeater capability; 80 memories; auto dialer with up to 20 memories; 5 watts out on VHF/ UHF with 13.8 VDC; Channel-Scope™; receives 108-173.995b (including AM) & 420-470 MHz. Memory scan, band scan, or programmed scan; cloning function; tone burst function; low battery indicator, automatic power off, and time out timer.

Receivers

DJ-X2T
$299.95
HRO Discount Price

NEW!

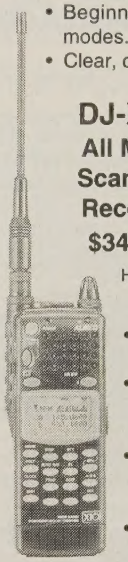
World's Smallest Scanning Receiver



This credit card sized receiver covers 522 kHz to 1 GHz (cellular blocked).

- 700 channels in 10 banks.
- RF detector (Bug Finder) to secure privacy.
- 3 antenna systems with SMA for external use.
    - AM / FM / WFM
    - Beginner / expert modes.
    - Clear, crisp audio.

DJ-X10T
All Mode Scanning Receiver
$349.95
HRO Discount Price



- Dual VFOs.
- 1200 memory channels.
- AM, NFM, CW, SSB WFM.
- Tunes 100 KHz to 2 GHz (cellular blocked*).
- Alphanumeric channel designation.
- PC programmable.
- Internal "Help" function.
- ChannelScope™ spectrum display.

* Unblocked version available to qualified buyers. Documentation required.

Alinco Handheld Specifications

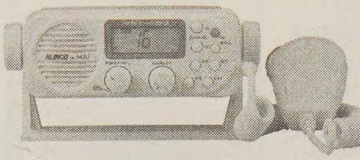
Model	Frequency Range	Power	Current Drain Xmit	Current Drain Rec	Power Out **	Memories	Ant Z	Mike Z	Sensivity	Height in	Width in	Depth in	Weight lbs
DJ-280TH	222-225 MHz	13.8 VDC			4.5 W	10	50 W	2k W	<.16 mV at 12 dB	6.4	2.2	1.3	.0.89
DJ-C5T	2m / 440 MHz		300 mA	40 mA	300 mW	50	50 W	2k W	<.16 mV at 12 dB	3.7	2.2	0.417	0.18
DJ-G5TH	2m / 440 MHz	13.8 VDC	1.4 A	85 mA	5 W	80	50 W	2k W	<.16 mV at 12 dB	5.4	2.24	1.1	0.77
DJ-V5T&V5TDC	2m / 440 MHz	13.8 VDC	1.6 A	220 mA	5 W	200	50 W	2k W	<.16 mV at 12 dB	3.81	2.28	1.59	0.74
DJ-195T	2 m	13.8 VDC	1.2 A	200 mA	5 W	40	50 W	2k W	<8dBm	4.9	2.2	1.57	0.41
DJ-196T	2 m				5 W	40	50 W	2k W					
DJ-496T	430-450 MHz				5 W	40	50 W	2k W					
DJ-S11T	144-148 MHz	4.5 VDC	250 mA	33 mA	340 mW	20	50 W	2k W	<.15 mV at 12 dB	3.93	2.16	1.1	0.41
DJ-S41T	425-449.995 MHz	4.5 VDC	250 mA	33 mA	340 mW	20	50 W	2k W	<.15 mV at 12 dB	3.93	2.16	1.1	0.41

** Power output is determined by choice of battery pack.

ALINCO

MARINE / HF MOBILES

Marine Radio



DR-MA1

$149.95
HRO Discount Price

This VHF FM Marine transceiver has 54 channels TX and 86 RX. USA and international operating modes. Dual Watch mode allows the operator to monitor channel 16, the selected working channel, and the weather channel. Weather Alert automatically switches to weather frequencies.

- High / Low power output (25w / 1w).
- Time-out timer.
- Adjustable squelch.
- Loud, clear audio.
- Large display.
- 10 weather channels.
- Includes mounting bracket, power cord, mike.
- Connector for external speaker.
- Water resistant.

HF plus 6 Meters

DX-70TH – $839.95

HRO Discount Price

- Includes general coverage receiver.
- All-mode.
- 100 watt output from 1.8-30 MHz & 6 m.
- 100 memories with 10 memory group scans.
- Detachable control head for remote mounting.
- Dual VFO.
- CTCSS for 6/10 m.
- Full QSK and auto break-in for CW.
- Built-in narrow band filter.
- Built-in RF preamplifier, speech processor, noise blanker.
- Size 2.25"(H) x 7"(W) x 9"(D).

Handheld Accessories

MODEL	DESCRIPTION	C5	F1T	F1T-HP	G1T	G5	S11 S41	V5	X10	162 TD	162T	180T 180T-HP	190 191T 191T-HP	195T	280T	560 TA	580T	HRO Price
EBP-24N	Ni-Cd Battery (7.2V 1200 mAh)											*			*	*	*	$78.95
EBP-26N	Ni-Cd Battery (7.2V 700 mAh)											std			*	*	*	$41.95
EBP-28N	Ni-Cd Battery (12V 700 mAh)											*			*	*	*	$68.95
EBP-33N	Ni-Cd Battery (4.8V 650 mAh)					*			*				*					$63.95
EBP-34N	Ni-Cd Battery (4.8V 1200 mAh)					*			*				*					$82.95
EBP-36N	Ni-Cd Battery (9.6V 650 mAh)					*							*					$67.95
EBP-37N	Ni-Cd Battery (4.8V 700 mAh)					*							*					$34.95
EBP-45N	Ni-Cd Battery (6.0V 700 mAh)							*										$47.95
EBP-46N	Ni-Cd Battery (9.6V 600 mAh)							*						*				$65.95
EBC-6	Mobile Bracket		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	$16.95
EDC-16B	Filtered DC Cig. Cable	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*	$22.95
EDC-36	Filtered DC Cig. Cable	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*	$24.95
EDC-37	13.8 volt Power Cable	*	*	*	*			*					*	*	*		*	$7.95
EDC-43	Cigarette Lighter Cable	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*	$8.95
EDC-45	Quick Charger		*	*						*	*	*			*	*	*	$79.95
EDC-49	Wall Charger											*			*	*	*	$23.95
EDC-60	Rapid Charger					*			*				*					$78.95
EDC-63	Wall Charger					*			*				*					$24.95
EDC-88	Quick Charger EBP-33N, 34N,35N,36N, 37N,48N					*			*				*	*				$53.95
EDC-91	Quick Charger EBP-45N, 46N							*										$53.95
EDC-93	Wall Charger							*										$23.95
EDH-11	Dry Cell Case											*			*	*	*	$10.95
EDH-12	DC Jack Adaptor for ext. power											*			*			$10.95
EDH-16	Dry Cell Case					*			*				*					$10.95
EDH-29	Dry Cell Case							*										$12.95
EDS-7	2 Pin Mike Adapter	*																$10.95
EJ-14U	50 Memory Channel Unit											*			*			$21.95
EJ-15U	200 Memory Channel Unit											*			*			$29.95
EJ-28U	CTCSS Decoder Unit												*					$42.95
EMS-8Z	Speaker Microphone		*	*	*	*	*	*		*	*	*	*	*	*	*	*	$48.95
EMS-47	Speaker Mike (req EDS-7)	*	*	*	*	*	*	*				*	*	*	*	*	*	$24.95
EMS-50	Round Speaker Mic	*																$63.95
EME-12	Headset w/ear hook VOX & PTT		*	*	*	*	*	*				*	*	*	*	*	*	$70.95
EME-16	Tie Pin Microphone	*	*	*	*	*	*	*		*	*	*	*	*	*	*	*	$25.95
EME-17	Earplug Headset	*	*	*	*	*	*	*		*	*	*	*	*	*	*	*	$25.95
EME-18	Earphone	*																$10.95
ESC-18	Leatherette Case EBP-24N											*			*			$14.95
ESC-19	Leatherette Case EBP-28N											*			*			$18.95
ESC-23	Soft Case (EBP-30N)				*													$16.95
ESC-24	Soft Case (EBP-31N/32N)				*													$10.95
ESC-27	Soft Case						*											$16.95
ESC-28	Soft Case (EBP-37N)					*			*				*					$10.95
ESC-29	Soft Case (EBP-33N)					*			*				*					$10.95
ESC-30	Soft Case (EBP-34N/35N/36N)					*			*				*					$10.95
ESC-35	Soft Case black							*										$12.95
ESC-36	Soft Case black													*				$12.95

HF Transceiver

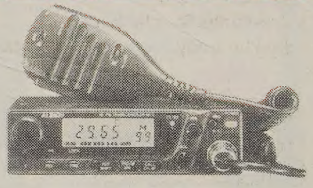
DX-77T

$799.95
HRO Discount Price

The DX-77T transmits on ham bands 10–160 meters in SSB, CW, AM, FM, and data. It has a general coverage receiver 150 KHz – 30 MHz.

- Output on SSB, CW and FM is 100 watts; on AM, 40 watts.
- 100 memories store mode, split, RF attenuation, frequency, AGC, gain.
- Two VFOs plus memory mode.
- Built-in speech processor, IF shift, CW audio filter, electronic keyer.
- Computer control option: ERW-4.
- Full QSK, 7-step semi break-in, or auto break-in CW modes.
- CTCSS tone access for 10m FM.
- Convenient front panel jacks for key, headphones, or external speaker. Rear panel connectors for external amp, antenna, EDX-2 tuner, power, computer control.

6 or 10 Meters



DR-MO3

10 Meters – $179.95
HRO Discount Price

The DR-M03 covers 28 to 29.7 MHz with selectable 10 W or 1 W output. Set repeater offsets 0 to 15.995 MHz. It has 100 memories and 50 CTCSS encoders. Decoder (EJ-20U) is optional. Programmed memory scan passes empty memories.

DR-MO6TH

6 Meters – $279.95
HRO Discount Price

Covers the 6m band with 20 watts output. This rig has 100 memories and includes CTCSS encoder.

Single Band Mobiles

NEW!

Available in black or pewter. Same Low Price!

DR-135T
$304.95
DR-135TP
$319.95
HRO Prices

Transmit and receive 2 meter and receive Airband (AM). Ignition key power control, theft alarm, 7 piace alphanumeric display, front panel data input, optional internal packet module can be used with APRS (TM), 9600 packet mode, rear panel serial port connection. Power settings of 5/10/50 watts, 100 memories, 10 autodial memories, CTCSS and DCS encode/decode, and more. DR-135TP model comes packet ready with factory installed EJ-41U TNC unit.

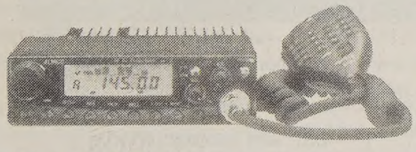
- DR-135TP has EJ-41U TNC installed for 1200/9600bps packet and APRS.
- 50/10/5 watts output settings.
- CTCSS encode/decode.
- Huge LCD with 7 character alphanumeric display.
- Back-lit, new style DTMF microphone
- Ignition key activated ON/OFF feature.
- Available in black or pewter body.

Coming Soon!!

DR-235TP
(220 MHz)

DR-435TP
(440 MHz)

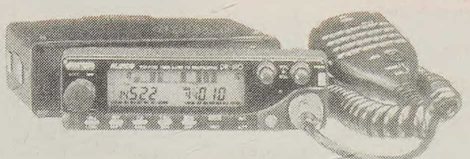
*The FCC has not yet approved the DR-235 or DR-435. They may not be offered for sale or lease until the approval of the FCC has been obtained.



DR-150TQ
2m
$289.95
HRO Discount Price

- 50 watts high output, 25 watts medium, 10 watts low.
- Receives 108 - 173.995 MHz & 440 - 449.995 MHz.
- Transmit 144-147.995 MHz.
- Two VFO's.
- Channel Scope™ (Visual Search).
- 100 memory channels.

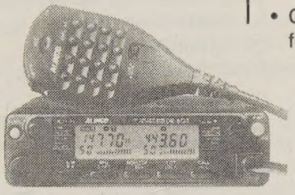
Dual Band Mobiles



DR-610TQ – $519.95
HRO Discount Prices

The 2m / 70 cm DR-610TQ is ideal for mobile or base station operation. Mount the front panel away from the radio if you wish.

- 50 watts VHF / 35 UHF.
- Built-in duplexer.
- Built-in CTCSS tone encoder and decoder.
- Extended receive: 108-174 MHz (including AM) and 420-470 MHz.
- 5 channel auto dialer.
- Airband receive standard.
- Two VFO's.
- Band, programmed, or memory scan.
- 120 memories
- 9600 bps ready with built-in I/O jack.
- ChannelScope™.
- Cross band repeater function.



DR-605TQ
$379.95
HRO Discount Price

The DR-605 models are 2m / 70 cm transceivers.

- 50 watts VHF and 35 watts UHF.
- Built-in duplexer.
- Built-in CTCSS tone encoder. Decoder is optional in T; built in to TQ.
- Extended receive range: 136-174 MHz (including AM) and 420-470 MHz.
- Channelized display.
- 9600 BPS ready.
- Cross band repeater function.
- Crossband memory.
- Band, programmed, or memory scan.
- 50 memory channels per band memories plus call channel.
- Tone burst function (1450, 1750, 2100 Hz)

Alinco Mobile Accessories

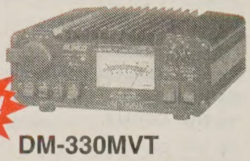
Model	Description	DR-130T DR-430T DR-M06T DR-M03	DR-135T	DR-140T	DR-150T	HRO Price
EJ-19U	Memory Expansion	*				$24.95
EJ-20U	Tone Squelch Unit	*		*	*	$33.95
EJ-41U	TNC unit		*			TBA
PC-15B	Power Cord	*			*	$10.95
MB-130	Mounting Bracket	*		*	*	$19.95

Family Radio

DJ-S46T
$95.95
HRO Discount Price

No license required to use this hand-held with 340 mW output power, 14 channels, 50 CTCSS tone encoder, scan, page tone. Runs on 3 AA batteries or NiCads. Great for family outings.

Accessories



NEW!

DM-330MVT
Switching Power Supply

Super compact, lightweight power supply is great for portable operations. Provides 32 amps peak, 30A continuous. Variable output 5-15 VDC. Preset voltage function. Patent pending noise offset circuit moves pulse noise. Short circuit protection. Convenient front panel connections. Cigarette plug socket. **HRO Price $179.95**

DM-340MVT
Power Supply

Provides 35 amps peak, 30A nominal. Variable output 1-15 VDC. Convenient front panel connections. **HRO Price $159.95**

EDX-2
Automatic Tuner

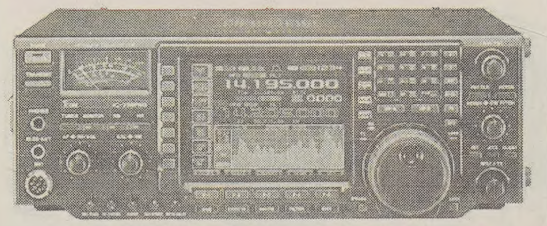
Mates with DX-70/77 radios. Tunes wire antenna 8-80ft. Use for base, mobile, or marine installations. **HRO Price $299.95**

Alinco Mobile Specifications

Model	Primary Use	Frequency Range	Power	Current Drain Xmit	Current Drain Rec	Power Out	Memories	Ant Z	Mike Z	Sensitivity	Height in	Width in	Depth in	Weight lbs
DR-135T	Mobile	2 m	13.8 VDC	11A	600 mA	5/10/50 W	100	50 W	600 W	<.16 mV at 12 dB	1.57	5.58	6.83	2.2
DR-150TQ	Mobile	2 m Trans	13.8 VDC	10 A	600 mA	50 W	100	50 W	600 W	<.16 mV at 12 dB	1.6	5.6	6.2	2
DR-605TQ	Mobile	2m/440 MHz	13.8 VDC	11.5 A	1.2 A	50 W/35 W	50	50 W	600 W	<.16 mV at 12 dB	1.6	5.6	7	2.43
DR-610TQ	Mobile	2m/440 MHz	13.8 VDC	11.5 A	1.2 A	50 W/35 W	120 †	50 W	600 W	<.16 mV at 12 dB	1.6	5.6	6.5	2.45
DR-M03SX	Mobile	28-29.7 MHz	13.8 VDC	3 A	800 MA	10 W/1 W	100	50 W	600 W	<.16 mV at 12 dB	2.0	5.51	4.52	2.5
DR-M06TH	Mobile	50-54 MHz	13.8 VDC	3 A	800 MA	20 W/2 W	100	50 W	600 W	<.16 mV at 12 dB	2.0	5.51	5	2.7

* Expand to 100 with optional EJ-19U †Expand to 240 with optional EJ-23U

ICOM



HRO's
Discount
Price
$2999.95

IC-756PRO

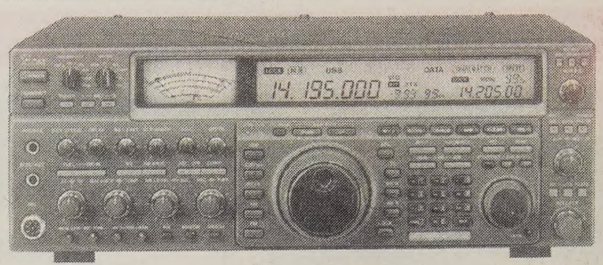
$3600.00

Suggested List Price

Newly designed HF + 6 meter (50 MHz) rig has 32 bit floating point DSP Digital IF filter with 51 selectable bandwidths, microphone equalizer, manual notch function, digital twin pass band tuning (PBT), and much more.

TFT 5 inch color LCD provides a wider viewing angle and increased display information including: dual frequencies; memory frequency and name; IF filter bandwidth; RTTY tuning indicator; real-time spectrum scope, and voice memory / CW memory keyer contents.

- RX: 0.5 ~ 29.995MHz, 50 ~ 54MHz.
- TX: HF and 50 MHz amateur bands.
- Output power: SSB / CW / RTTY / FM: 5 ~ 100 W variable, AM: 5 ~ 40 W variable
- Modes: USB, LSB, CW, RTTY, AM, FM.
- Number of memory channels: 101
- Dual AGC loop operation.
- IF filter and notch circuits.
- Low distortion, RF-type speech compressor with selectable band width.
- Built-in RTTY demodulator.
- Noise reduction function with variable rejection level.
- 8 channel digital voice memory function: 4 for transmit and 4 for receive.
- Real-time spectrum scope with selectable sweep range: ±12.5 kHz, ±25kHz, ±50kHz, ±100kHz.
- Dual watch can receive 2 signals on the same frequency band simultaneously.
- Triple band stacking register.
- Built-in memory keyer and electronic keyer.
- Built-in automatic antenna tuner covers 50MHz.



IC-775 / DSP

$3799.95

HRO Discount Price

PC Ready!

The digital IC-775 / DSP is designed especially for the serious DX'er who requires serious equipment. This radio is fun to operate but it was engineered from the ground up using high-quality components to offer performance you will find nowhere else. Icom's DSP technology brings you unsurpassed signal quality. Control of the signals at the modulation stage produces high quality SSB transmit signals that analog methods can not compete with. Noise reduction at the demodulation stage results in crystal clear signals. This is revolutionary DSP technology at work for the serious DX'er.

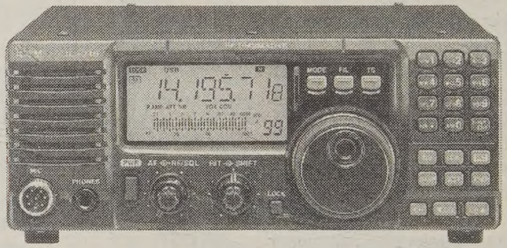
- Digital noise reduction. The DSP provides outstanding signal-to-noise ratio for clean receive signals.
- Digital automatic AF notch.
- Digital low-pass, high-pass, ultra-narrow CW filters.
- Digital auto audio peaking filter.
- Twin passband tuning, AGC, and noise blanker.
- MOS-FET finals.
- Direct digital synthesizer (DDS) for frequency stability.
- High performance general coverage receiver.
- Built-in antenna tuner.
- Built-in memory keyer, QSK function.
- Data mode for RTTY, SSTV or packet operation.

NEW!

IC-718

$749.95

HRO Discount Price



The IC-718 is an HF all-band transceiver with improved basic performance and operation simplicity employing Icom's latest technology

- RX: 0.03 ~ 29.995MHz
- TX: HF amateur bands.
- Output power: SSB / CW / RTTY: 5 ~ 100 W variable, AM: 2 ~ 40 W variable
- Modes: USB, LSB, CW, RTTY, AM.
- Number of memory channels: 101
- IF shift interference rejection.
- DSP with optional UT-106.
- FSK operation compatible.
- VOX operation, mic compressor, RF gain control.
- Built-in electronic keyer.
- 10-keypad for direct operating frequency entering and memory channel selection.

Icom HF Specifications

Model	Receive Freq Range	Power Supply	Current Drain Xmit	Power Output †					Mike Z	Receive Circuitry	Sensitivity 1.8-30 MHz	RIT / XIT Range	Notch	Audio
				AM	FM	SSB	CW	FSK						
IC-706MKIIG	30kHz-200MHz + 70cm	13.8 VDC	20A	40*	100*	100*	100*	100*	600 W	Dual Conversion(HF)	<.18mv at 10 dB	±9.9 kHz		>2.0W
IC-718	30 kHz - 29.99 MHz	13.8 VDC	20A	40	100	100	100		600 W	Double Conversion	<.18mv at 10 dB	±9.9 kHz	Option	>2.0W
IC-746	300 kHz - 60 MHz, 108 - 174 MHz	13.8 VDC	20A	40	100#	100#	100#	100	600 W	Quadruple Conversion	<.18mv at 10 dB	±9.9 kHz	auto DSP	
IC756PRO	300 kHz - 60 MHz	13.8 VDC	23A	40	100	100	100	100	600 W	Triple Conversion	<.18mv at 10 dB	±9.9 kHz	auto DSP	>2.0 W
IC-775/DSP	100 kHz - 29.99 MHz	120 VAC	135 VA	50	200	200	200	200	600 W	Quadruple Conversion	<.18mv at 10 dB	±9.9 kHz	auto DSP	>2.6 W
IC-781	100kHz - 30MHz	120VAC	760 VA	75	150	150	150	150	600 W	Quadruple Conversion	<.18mv at 10 dB	±9.9 kHz	45 dB	>2.6 W

† Output is continuously adjustable from 5 to full power # 50 watts on 2 meters, 20W 70cm G Model

HF + 6m + 2m + 70cm All-Mode

HRO
Discount Price
MKIIG $1099.95

IC-706MKIIG

$1680.00
Suggested List Price

The compact, feather-weight IC-706MKIIG HF/VHF/UHF all-mode transceiver is an update of the IC-706. Features include: improved VHF band RF stage, a tone squelch function standard, 2 optional filters, and the built-in DSP plug in IC-UT106.

The IC-706MKIIG covers the HF bands from 160 - 10 meters as well as the six, two meter and 70 cm bands. It includes all modes over its entire frequency range, including FSK for RTTY operation, and narrow FM on the HF bands. Receives 30 kHz to 70 cm with wide AM and wide FM broadcast reception.

It has a 100 watt output transmitter (40 watts AM) from 160 through 6 meters, with 50 watts output on 2 meters (4 watts AM) and 20W on 70cm. VOX is included, as well as a speech processor, I-Loop PLL circuit, and optional narrow SSB filter (FL-223). Multiple CW functions include a built-in keyer, optional narrow receiver filter, full break-in (QSK), adjustable CW pitch and CW reverse functions, tome squelch, backlit switches, AF DSP, and auto repeater function.

101 memories store up to 9 alphanumeric characters each. A dot matrix display shows all of the popular menu features, frequency and multifunction meter data. A spectrum scope displays band activity at a glance.

The front panel detaches to aid mobile installation. The PS-85 optional switching power supply is great for making the IC-706 a base station. The AT-180 optional automatic antenna tuner for coax systems and the AH4 for long wire or whip operation.

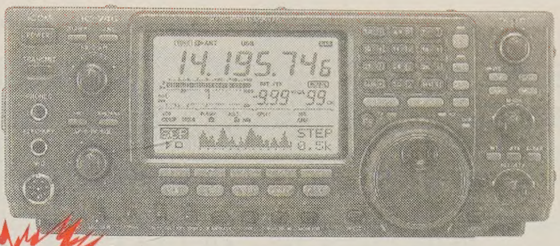
Remote Head Kit
RMK-706

Remote head kit for 706 product. (Includes MB-62, MB-63, and OPC-581.) **HRO Price $70.95**

HRO Accepts

VISA MasterCard DISCOVER

HF + 6m + 2m



HRO
Discount Price
$1589.95

IC-746

$2228.00
Suggested List Price

PC Ready!

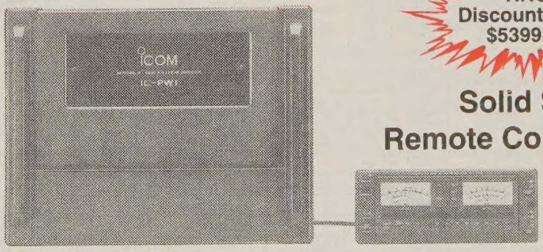
For the amateur who wants all the popular bands in one rig, the IC-746 has HF, 6 meters, and 2 meters. It offers all-mode operation (SSB, CW, RTTY, AM and FM) on all bands. It provides 100 watts output on all bands. The partially dot matrix LCD screen includes a spectrum display and shows the status of all major functions of the rig. It is the first in its price class to include twin Pass Band Tuning. It follows Icom's usual designs and uses most of the filters and other accessories designed for their HF radio line.

- A wide frequency coverage receiver with continuous coverage from 30 kHz to 60 MHz and 108-174 MHz.
- Large, multi-function LCD for ease of use in most any lighting condition. Multi-functions include band scope, memory names, key assignments, twin PBT settings, split frequency and memory keyer contents.
- Automatic antenna tuner covers HF and 6 meter bands. After operating on a band for the first time, preset memories can provide very high speed tuning.
- Versatile filter combinations allow up to 3 optional crystal filters.
- Aluminum die-cast chassis and large cooling fan for 100% duty operation.
- Complete CW functions include a built-in 4 channel memory keyer with 50 characters, CW electronic keyer, CW pitch control and full-break in.
- IF DSP function provides noise reduction, automatic notch filter, selectable APF.
- Digital, multi-function S/RF meter provides a variety of useful information on signal strength and RF output. SWR and ALC levels are simultaneously shown while transmitting.
- Other features include: tone squelch with 50 different tone frequencies; FM narrow capability; quick split function; triple band stacking register; memo-pad function; optional voice synthesizer; and IF transmit audio monitor.

HF + 6m Amplifier

IC-PW1

HRO
Discount Price
$5399.95



Solid State Remote Control Head

The IC-PW1 linear amplifier provides a wide frequency coverage with up to 1kW output requiring only a maximum of 100 watts input. The duty cycle is 100 percent with full break-in operation. It covers amateur bands from 160 meters to 15 meters plus 6 meters (10 m conversion information for licensed hams) and includes an automatic antenna tuner for all bands. Internal circuitry allows the ALC to be adjusted over a wide range allowing the PW1 to be used with almost any rig - not just Icom. Operates on 110 or 220 VAC 50 or 60 cycle. Single box shipping and the remote head is included.

ICOM

HF ACCESSORIES

Icom Base Station Accessories

OPTIONS		HF RADIOS												VHF/UHF		RECEIVERS						
		781	775	765	756	746	738	736	728	718	707	706	706 MKII	820	821H	R9000	R72	R75	R100	R7000	R8500	HRO Price
Ext. AC Power Supply	PS-85				*	*				*	*	*	*	*	*							$269.95
Internal AC	PS-35																					$299.95
External Speakers	SP-7						*	*	*	*	*	*	*	*	*		*		*	*	*	$75.95
	SP-10											*	*									$55.95
	SP-12											*	*									$44.95
	SP-20	1	*	1			*	*	*	*	*			*	*	1	*		*	*	*	$239.95
	SP-21		*		*	*	*	*		*	*			*	*							$119.95
Automatic Antenna Tuner	AH-4		*	*	*	*	*	*	*	*	*	*	*									$309.95
	AT-180		*	*	*	*	*	*	*	*	*	*	*									$499.95
	AT-500	*	*	*			*	*	*		*											$1,199.95
HF Amplifier	IC-PW1	*	*	*	*	*	*	*	*	*	*	*	*									$4,999.95
Antenna Selector	EX-627	*	*	*	*	*	*	*	*	*	*	*	*									$449.95
Antenna	AH-2B			*		*		*	*	*												$299.95
Weather Proof Preamps	AG-25													*	*							$149.95
	AG-35													*	*							$169.95
	AG-1200																					$169.95
Microphones	HM-36	*	*	*		*	std		*													$69.95
	HM-103											*	*									$74.95
	HM-118T												*									$59.00
	SM-6	*		*			*	*	*	*	*			*	*							$99.95
	SM-8	*	*	*		*	*	*	*	*	*	*	*	*	*							$159.95
	SM-20	*	*	*	*	*	*	*	*	*	*	*	*	*	*							$239.95
Mounting Brackets	MB-5								*	*	*			*	*		*	*			*	$59.95
	MB-12																			*		$59.95
	MB-18																					$59.95
	MB-19		*																			$74.95
	MB-23				*																	$15.95
	MB-49						*	*		*												$59.95
	MB-62												*									$25.95
	MB-63												*									$18.95
Handle	MB-23								*		*			*	*		*	*			*	$15.95
TV Adapter	TV-R7100																				*	$299.95
CI-V System	CT-16	*	*	*		*	*	*	*	*	*	*	*			*						$119.95
	CT-17	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		*	*	$129.95
High Stability Crystal Units	CR-282		*	*		*	*	*														$149.95
	CR-293													*	*			*				$339.95
	CR-338									*	*											$79.95
	CR-502				*							*	*									$76.95
FM Unit	UI-8																*					$109.95
	UI-9										*											$99.95
DSP Unit	UT-106									*								*				$139.95
Tone Encode	UT-30			*			*	*	*		*											$49.95
Tone Squelch	UT-34																					$79.95
	UT-86												*									$69.95
Voice Synthesizer	UT-66		*																			$69.95
	UT-102				*	*				*			*					*				$69.95

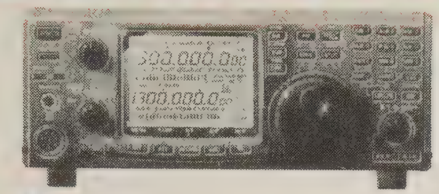
1: Style and size are matched with the equipment.

Icom HF Filters

Filter	Center Frequency	Bandwidth	Mode	781	775	765	756	746	738	737A	736	735	729	728	725	726	718	707	706	706 MKII	R71A	R72	R75	R9000	HRO Price
FL52A	455 kHz	500 Hz	CW	std		std	*	*	*	*	*						*	*					*	*	$179.95
FL53A	455 kHz	250 Hz	CW	std	*	*		*	*	*	*						*	*					*		$179.95
FL63A	9.0106 MHz	250 Hz	CW									*													$99.95
FL96	455 kHz	2.8 kHz	SSB					*									*						*		$179.95
FL100	9.0106 MHz	500 Hz	CW				*	*	*	*	*		*	*	*	*			*	*	*	*	*		$99.95
FL101	9.0106 MHz	250 Hz	CW	std	*	*	*	*	*	*	*		*	*	*	*			*	*		*	*		$99.95
FL102	9.0100 MHz	6.0 kHz	AM	std	*	*																			$75.95
FL103	9.0115 MHz	2.8 kHz	SSB	*				*											*	*	std		*		$109.95
FL-222	455 kHz	1.9kHz	SSB		*		*	*									*						*		$199.95
FL-223	9.0115 MHz	1.9 kHz	SSB		*		*	*											*	*			*		$79.95
FL-232	9.0115 MHz	350 Hz	CW		*		*	*											*	*			*		$89.95
FL-257	9.0115 MHz	303 kHz	SSB														*						*		$199.95

Check the HRO Secure Web Site http://www.hamradio.com
frequently for special offers and manufacturers' coupons.

2m/440 MHz Base Station



NEW!

IC-910H
$TBA

*The FCC has not yet approved this radio. It may not be offered for sale or lease until the approval of the FCC has been obtained.

On the IC-910H, two meters and 70 cm are standard. With the optional UX-910, the radio also operates on 1200MHz. It is an all mode transceiver with up to 100 W output. It's a great rig for satellite operation. It features a large LCD display and 10-key pad for ease of operation.

- 100 W on 2 meters, 75 W on 440 MHz and 10 W with the optional UX-910 on 1200 MHz.
- 3.5 inch large LCD.
- 10-key pad for direct entering of frequency or memory channels.
- Satellite mode operation support.
- 9600 bps PACKET communication.
- IF Shift interference rejection.
- Optional DSP capability with the AF DSP UT-106 unit.
- Simultaneously works two bands. Cross band and full duplex operation.
- Full CW support with speed adjustment and full and semi-break in.
- 50 CTCSS tone encoder, VOX, speech compressor, 99 memory channels, PC interface with optional CT-17.

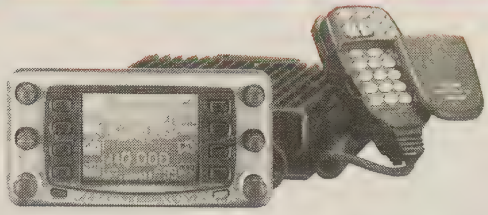
Cloning Software

Icom cloning software for Windows allows you to preprogram memory channels with operating frequencies, set tones, set power levels, set squelch levels, set up auto-dial DTMF frequencies, and exchange operating frequencies.

Software is available for these radios. **Call for price quotes.**

- CS2710 for 2710H (with OPC-646).
- CSR10 for RC10 with OPC-478).
- CSR2 for R2 receiver.
- CSWHH-4 for Windows (IC-T2A, T7A, W32A, T8).
- Remote software for IC-746 is RS-746; for IC-R75 is RS-R75.
- CSWHH-4 software and cable (T2H, T7H, T8A, W32A).
- CS-2800 for IC-2800H.
- CSW710/207 software without cable (207H, 2710H).
- CS-T81without cable for T81A.
- CS-2800 without cable for 2800H.
- CSWHHRX software/ cable (R2, R10).
- CS-R3without cable (R2).
- RS746 control software without cable (746).

2m / 70cm Mobiles



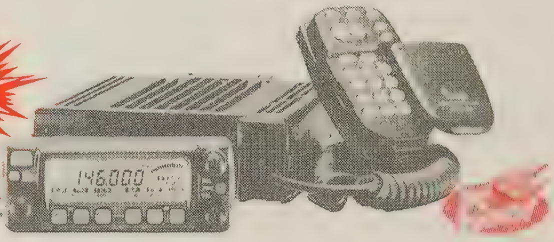
IC-2800H
$549.95
HRO Discount Price

The IC-2800H 2m / 440 MHz dual bander is designed for the ham with demanding 2m/ 70cm mobile requirements. It has a number of great features that make VHF / UHF mobile operaton more fun.

- 3 inch multi-function color LCD display.
- NTSC video port input for monitoring broadcast TV with a TV tuner or displaying a GPS map.
- Band scope.
- Independent tuning and control knobs.
- Remote control head with 11.5 foot cable supplied.
- CTCSS encode/decode with tone scan standard.
- 9600 bps packet terminal ready.
- Receive frequency range is 118-174 MHz and 440-450 MHz.
- 232 memories.
- PC Programmable.
- Die-cast aluminum chassis.
- Full control mike.

HRO Discount Price $299.95

IC-207H



This versatile 2m / 440 MHz dual band will fit easily into your car and it comes 9600 BPS packet ready. The wideband receiver covers 118-174 MHz including airband and 440-540 MHz. Output is 50W VHF and 35W UHF. Other features include CTCSS encoder/decoder with tone scan standard, built-in duplexer, 162 memory channels, HM-98 mike and detachable front panel.

Remote Head Kit RMK-3

Remote head kit for 207H includes MB-68, OPC-600, & OPC-647. **HRO Price $84.95**

2m Mobile

IC-2100H
$179.95
HRO Discount Price

Select a green or amber display for easy viewing of the IC-2100H in any light. IMD provides protection from excessively strong signals. A squelch attenuator reduces interference from strong nearby signals. Selectable power from 55 W down to 5 or 10 W. Tone squelch standard with pocket beep and tone scan functions. 113 memory channels. PC ready and 14 channels for 16 digit DTMF codes. Full remote control from the mike. CTCSS encode/decode WITH TONE SCAN standard.

Icom VHF Specifications

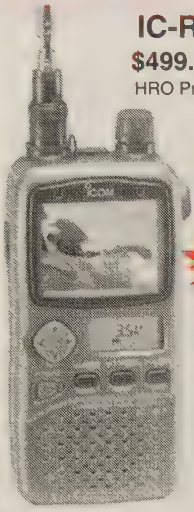
Model	Freq Range	Mode	Power Supply	Current Drain Xmit	Curernt Drain Rec	Power Out Watts	Ant Z	Mike Z	Sens	Audio Pwr	Built-in AC Supply
IC-207H	2m / 440 MHz†	FM	13.8 VDC	12 A	1.0 A	50 / 35	50 W	600 W	<.18 mV	2 W	no
IC-910H	2m / 440 MHz*	All	13.8 VDC	23 A	2.5 A	100/75/10*	51 W	600 W	<.18 mV	2 W	no
IC-2100H	2m	FM	13.8 VDC	12A	1.0 A	55	50 W	600 W	<.18 mV	2.4 W	no
IC-2800H	2m / 440 MHz	FM	13.8 VDC	12A	1.8 A	50 / 35	50 W	600 W	<.18 mV	2.4 W	no

† Extended receiver coverage 118-174 MHz (airband included), 440-450 MHz * 1200 MHz with optional UX-910

IC-R3

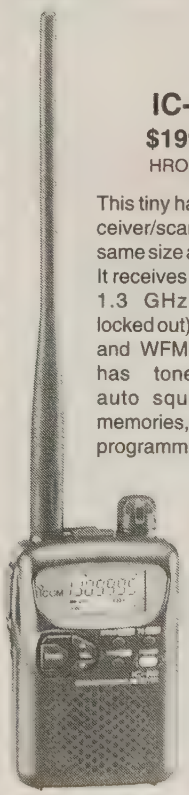
$499.95

HRO Price



NEW!

A first for a handheld receiver: a built-in TFT color LCD shows a variety of information (e.g. receiving frequency, tuning step, memory channel number). A clear TV picture can be displayed. Either NTSC M, PAL N, PAL B/G or PAL I is supported depending on version. Features a super wide frequency coverage from 0.495-2450 MHz (Cell Band blocked) with AM, FM, wide-FM, and TV picture receive capability standard.



IC-R2

$199.95

HRO Price

This tiny handheld receiver/scanner is the same size as the Q7A. It receives 485 kHz to 1.3 GHz (cellular locked out) in AM, FM, and WFM modes. It has tone squelch, auto squelch, 400 memories, and it is PC programmable.

HRO Discount Price $359.95 Blocked $449.95 Unblocked

IC-R10

$641.00

Suggested List Price

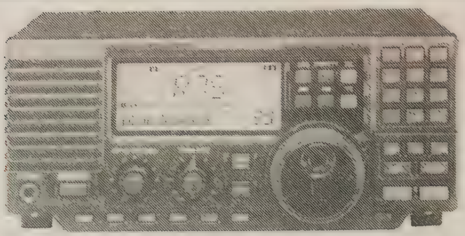
The R10 receives from 0.5 MHz to 1300 MHz. Unblocked version available to government authorized agencies.

- Multi function LCD.
- Automatically tuned front-end filters .
- All mode receive: FM, WFM, AM, USB, LSB, CW and SSB.
- 1000 memories. Store eight-character names in each channel.
- Real-time bandscope makes it easy to find busy frequencies.
- The "busy catch scan" searches for the next busy frequency (FM only) while the receiver is detecting a signal.
- Voice Scan Control pauses only for modulated signals.
- Full computer access is available from your home PC with the optional CS-R10.

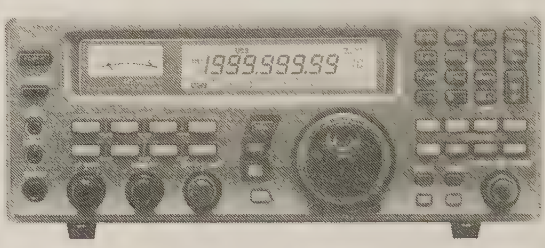
IC-R75

$799.95

HRO Price



This receiver covers the HF bands plus 6 meters (0.03 to 60 MHz). It features twin PBT, PC control with the optional RS-R75 software, synchronous AM detection, optional DSP capability (UT-106) and a front mounted speaker. Modes include USB/LSB, CW, RTTY, AM/S-AM and FM. A complete line of filters are available. Operates at 13.8 VDC ± 15% at 2.0 A. Features 101 memories (99 regular and 2 scan edges. Program scan, memory scan and priority scan. Direct frequency input with numeric keypad. Two-level pre-amp, noise blanker and selectable AGC.



IC-R8500

$1499.95

Blocked Version

HRO Price

Serious listeners will appreciate this super wide band receiver that offers the high performance of the IC-R9000 at a much lower price. Receive from 0.1 to 2000 MHz in all modes (cellular band blocked). Be sure that if there are any communications out there, you'll be able to hear then with a minimum of interference.

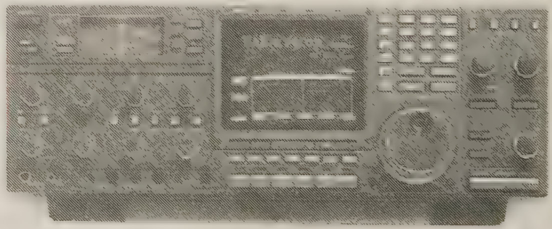
- All modes (USB, LSB, CW, AM, FM WFM) plus CW narrow (optional FL-52A required), AM & FM narrow.
- Noise blanker, RF attenuator, selectable AGC.
- 1000 memory channels store frequency, mode and tuning step. Channels in 20 banks of 40 channels plus auto memory write of 100 channels and skip area of 100 channels. Alphanumeric names (8 characters) may be assigned.
- Built-in AF shift & APF.
- High receive sensitivity and built-in TCXO for high stability.
- View TV signals with optional TV-R7100. Connection to CRT monitor required (not included).
- RS-232 interface, versatile scanning functions, various tuning steps, 3 antenna connectors, S-meter squelch, voice synthesizer (optional UT-102 required), sleep timer, REC and REC remote terminals for tape recorder control.

IC-R9000L

$9499.95

Suggested List Price

Call for Quotes



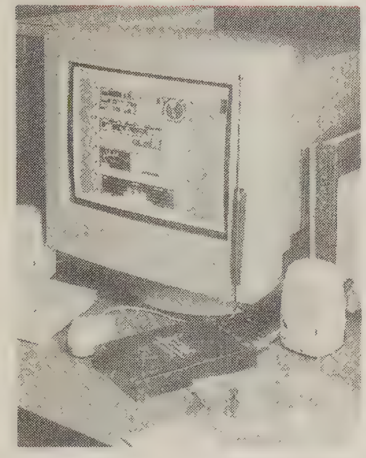
Notice: Federal and State Government Agencies Customers Only

This receiver has Icom's unique multifunctional LCD display with spectrum scope to display information on the status of the radio as well as incoming signals.The LCD display shows memory contents, dual clocks, weekly and daily timers, and frequency information of the dual VFO's. The display doubles as a spectrum scope showing a maximum of ±100 kHz. Dynamic range is 60 dB and sensitivity is approximately .63µV.

The IC-R9000 receives 100 kHz to 1999.8 MHz in LSB, USB, CW, AM, FM, WFM (wide-FM), FSK. Eleven bandpass filters use GaAs Fets for VHF and UHF. 1000 memories stores mode, frequency, and tuning increments. Multiple scanning functions: program, memory, selected memory, selected memory mode, priority, and voice. Direct keyboard entry; notch filter and IF shift.

PC-Controlled All-Mode Receiver

HRO
Discount Prices
$399.95 Blocked
$529.95 Unblocked



(Computer required. Shown here for illustation.)

IC-PCR-1000

$629.00

Suggested List Price

Listen to the world right from your PC: broadcast radio, TV, ham stations, marine, aviation, and more. Control this receiver on any personal computer via three interface screens. Unblocked version available to government authorized agencies.

Wide band coverage from 10-1300 MHz (cell phone blocked). All modes: AM, FM, WFM, USB, LSB, CW. You have IF shift, noise blanker, six scan types, programmable tuning steps, RF attenuator, on-line help and unlimited memory channels. You may add 9600 baud data receive with a third party TNC. Also features a real-time bandscope function, DSP plug-in option.

Package includes AC adapter, telescoping antenna with BNC connector, RS-232C cable, software for Windows 3.2 or 95, and an external speaker plug. Optional accessories include DC power cable, wide band base station antenna, and a choice of several external speakers.

IC-PCR-100

$249.95

HRO Discount Price

Simplified version of the PCR1000 without SSB capability and DSP option. Band scope function is included. Stereo output, Win 98 compatible. **HRO Price $299.95**

Icom Receivers Web Site

Icom America, Inc. and PerCon Corporation announce a new website for your scanning enjoyment!

http://www.Icomreceivers.com

is the site you want to go to download the memory channels for your Icom computer programmable receiver. The IC-PCR100, IC-PCR1000, IC-R2, IC-R10, IC-R8500, and IC-R75 are supported on the site. Future Icom radios will be added as well.

Handheld Batteries/ Chargers

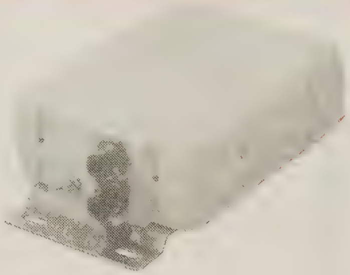
Model	Volts	Rating mAh	Wall Charger	Desk Charger	HRO Battery Prices
BP3	8.4	270	BC-25u	BC-35	$65.95
BP-8	8.4	800	BC-16u	BC-35	$99.95
BP-82	7.2	300	BC-110A	BC-72	$83.95
BP-83	7.2	600	BC-110A	BC-72	$90.95
BP-84	7.2	1000	BC-110A	BC-72	$99.95
BP-85	12	340	BC-110A	BC-72	$119.95
BP-102	7.2	1200		BC-119*	$116.95
BP-131	7.2	900		BC-119*	$119.95
BP-132	12	600		BC-119*	$139.95
BP-132A	12	600	BC-77A	BC-119*	$139.95
BP-157	7.2	900	BC-77A	BC-119*	$59.95
BP-160	7.2	700	BC-77A	BC-119*	$66.95
BP-171	4.8	700	BC-74A	BC-119*	$83.95
BP-172	4.8	650	BC-74A	BC-119*	$69.95
BP-173	9.6	600	BC-74A	BC-119*	$99.95
BP-180	7.2	600		BC-119*	$83.95
BP-194	**				$18.95
BP-195	9.6	700	BC-110A	BC-119*	$42.95
BP-196	9.6	1050	BC-110A	BC-119*	$53.95
BP-197	**				$24.95
BP-198	4.8	700	BC-110A	BC-119*	$59.95
BP-199	6	700	BC-110A	BC-119*	$70.95
BP-200	9.6	680	BC-110A	BC-119*	$85.95

*Adapters are required. See Adapter Table.
** "AA" Alkaline Pack.

BC-119 Adapters

Adapter	For Batteries	HRO Price
AD-25	BP-131A, BP-132A, BP-157A	$63.95
AD-27	BP-100, BP-130	$18.95
AD-28	BP-131, BP-132	$18.95
AD-51	BP-171, BP-172, BP-173	$14.95
AD-56	BP-171, BP-172, BP-173, BP-180	$18.95
AD-81	BP-195, BP-196	$17.95
AD-87	BP-198, BP-199, BP-200	$8.95

HF Antenna Tuners



Automatic HF Antenna Tuner AH-4

Tune up from HF through 50 MHz band. The AH-4 auto-tuner covers all amateur bands from 80 through 6 meters when used with a minimum 23' long wire antenna. Wih the optional AH-2b antenna element, tune 40 through 6 meters for mobile operation.

It has automatic band changes and tunes usually in less than 2.5 seconds. The 45 memories store SWR minimum and tuning combinations. With those Icom radios with the TUNER feature, the AH-4 is remotely controlled from the radio front panel. Requires only 300 mW to tune and handles up to 120 watts. **HRO Price $309.95**

Icom HF Tuners

Features	AT-180	AH-4
Input Power (Watts)		
Max	120	120
Min	8	10
Auto Tune Time (seconds)		
New Band	2 - 4	2 - 3
Same Band	£3	1
Tuning Accuracy	VSWR<1.5	VSWR<2:1
Auto Band Switching	yes	yes
Preset Matching	CPU Controlled	CPU Controlled
Power Supply	13.8 VDC	13.8 VDC
Frequency Coverage	1.8-28 MHz	3.5-54 MHz
Radios	IC-706	Most
HRO Price	$499.95	$309.95

Note: AT180 will work with most ICOM HF radios, but some need additional cabling to operate.

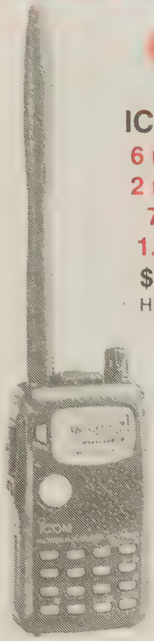
Look for Ham Radio Outlet on the Web

http://www.hamradio.com

email: sales@hamradio.com

ICOM

Quad-Band HT



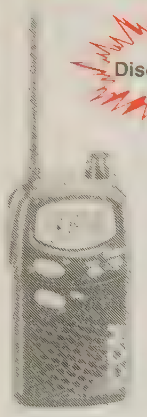
IC-T81A

6 meters
2 meters
70 cm
1.2 GHz
$299.95
HRO Price

The ultra-compact IC-T81A covers 6m, 2m, 70cm and 1.2 GHz. It has a multifunction 'joy-stick' allowing quick and easy band changes and other functions. Has wide FM and AM modes to monitor FM broadcast and air bands. Tone squelch is standard. RIT and VXO for 1.2 GHz. 124 memory channels, auto repeater function (USA version), PC programmable, 9 DTMF memories.

Family Radio

HRO
Discount Price
$79.95



IC-4008A

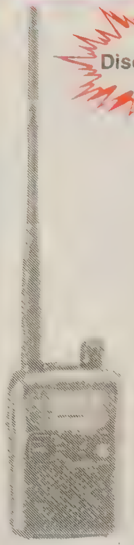
$160.00
Suggested
List Price

Choose black or yellow

The easy to operate IC-4008 has water-resistant construction and features a 'Call Ring' function to send a ring tone to another radio. Up to 10 ring patterns may be selected. An automatic transponder function automatically checks on another station's availability. Uses 3 AA alkaline cells.

2m / 70 cm Dual -Band

HRO
Discount Price
$139.95

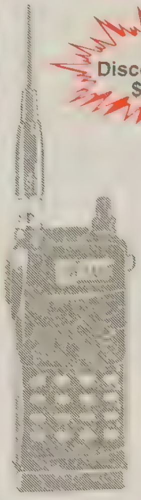


IC-Q7A

$229.00
Suggested List

This mini-power twin-band HT has a wideband receiver 30 MHz to 1.3 GHz (cellular frequencies excluded). Receives FM, AM and WFM modes for air band, TV and FM broadcast stations. Output on transmit is 350 mW for VHF and 300 mW for UHF. Tone squelch standard. CTCSS Encode/Decode with tone scan. RIT capability. Two hundred memories. LCD backlighting with timer. Uses 2 standard AA or NiCd batteries.

HRO
Discount Price
$209.95



IC-T7H

$303.00
Suggested List

The IC-T7H fits comfortably in the palm of your hand. Carry it in your pocket or a small bag.

- Single VHF / UHF power module.
- One touch operation .
- 6W out 13.8VDC.
- Encode/decode included.
- PC programmable.
- Easy scanning display.
- High speed scan and scan timer.
- Auto band selection, memory allocation
- 70 memories, 9 DTMF auto dialing memories.
- Wide band receive.
- Microphone remote control.
- Indicator shows approximate battery voltage remaining.
- Compatible with T22A, W31A and Z1A accessories.

HRO
Discount Price
$269.95

IC-W32A

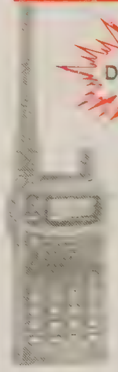
$365.00
Suggested List

This upgrade to the IC-W31A has the same features plus much more:

- 5 watts out with BP-173.
- 200 programmable memories .
- Separate analog volume controls and adjustable squelch.
- PC programmable.
- Wire cloning from another W32A.
- Advanced VV/UU/VU performance.
- Allows transmitting on VHF with simultaneous receiving on UHF. Same for UHF Tx and VHF Rx.
- More CTCSS frequencies: set Rx and Tx tone separately from 50 built-in frequencies.
- Weather channels.
- Backlit keypad.
- 8 character alphanumeric display.
- Extended VHF / UHF receive.
- Crossband repeat.
- Guide functions for set modes.

2 Meters

HRO
Discount Price
$249.95



IC-T22

Now with BP-180 Battery

This convenient 2m handheld gives you high quality at a low price.

- 40 memories.
- Slim, easy-to-use.
- Excellent receive audio.
- Wide-band reception.
- "Log-in" feature memorizes transmitted frequencies.
- Runs directly from 12V for 5 W output.
- Battery pack compatible with the IC-Z1A, IC-W31A, IC-W32, & IC-T7H.

2 Meters

HRO
Discount Price
$159.95

IC-T2H

This simple to operate 2m handheld has cloning capability, customizable keys and a guide function, all housed in a solid body. Tone squelch and DTMF are standard.

- LCD backlight.
- Transmits 140-150 MHz; receives 136-174 MHz.
- 6 watts output standard.
- Encode decode tone squelch operation standard. Includes pocket beep and tone scan.
- 8 front panel keys are custom programmable by the user. Assign functions by cloning or manual keypad operation.
- 40 memory channels.
- 5 DTMF memory channels.
- Alkaline or NiCD capable.

World's only
7-Watt HT
HRO Price
$249.95

IC-2GXAT-HP

You will enjoy the simple operation of this high power HT.

- Output 7 W with BP-132A battery or 13.5 VDC.
- Forty repeater memories; 1 call channel.
- Programmed or memory scan with skip function.
- Tone scan function.
- Squelch monitor.
- Automatic power saver.
- Lighted display with timer.
- DTMF redial and five auto dial memories.
- Auto repeater function.
- Channel number indication.
- Subaudible tone encoder, tone squelch and pocket beep. Optional pager and code squelch (UT-49 required)

HANDHELDS & ACCESSORIES

Icom Handhelds

Model	Frequency	Power Supply	Power Out Transmit*	Current Transmit	Drain Receive	Sensitivity	Height in(cm)	Width in(cm)	Depth in(cm)	Weight oz (g)	HRO Price
IC-2GXAT-HP	144-148 MHz†	13.5VDC	7.0/3.0 W	1.8 A	250 mA	<.18mV/12 dB	4.9(12 2)	2.2(5.7)	1.1(2.9)	13(365)	$249.95
IC-Q7A	2m/440††	3.0 VDC	350/300 mW	440 mA	170mA	<.16mV/12 dB	3.4(8.6)	2.3(5.8)	1.1(2.7)	6 (170)	$139.95
IC-T2H	140-150MHz†	9.6VDC	6.0/1.0W	1.5 A	75mA	<.18mV/12 dB	5.5((14)	2.4(5.8)	1.4(3.2)	14.8(420)	$159.95
IC-T7H	2m/440	7.2 VDC	6.0/1.0 W	1.2 A	600 mA	<.16mV/12 dB	4.9(12.5)	2.2(5.7)	1.4(3.5)	11(320)	$209.95
IC-T81A	6m/2m/440/1.2GHz	4.5-16VDC	5.0/.5 W	1.4 A	220 mA	<.18mV/12 dB	4.3(10.7)	2.3(5.8)	1.1(2.7)	10.2(290)	$299.95
IC-T22	2m	13.5 VDC	5.0/.5 W	1.4 A	150 mA	<.16mV/12 dB	4.8(12.2)	2.3(5.8)	1.1(2.7)	10.9(310)	$249.95
IC-W32A	2m/440 #	13.5VDC	5.0/.5 W	1.6 A	210 mA	<.18mV/12 dB	5.4 (13.7)	2.2(5.7)	1.3(33)	16 (450)	$269.95

* Power with standard battery pack
# Extended receive 118-174 MHz and 400-470MHz
† Frequency coverage 138-174 (receive only outside amateur bands), 440-450 MHz
†† 1.0/0.1W 1.2GHz

Icom Handheld Accessories

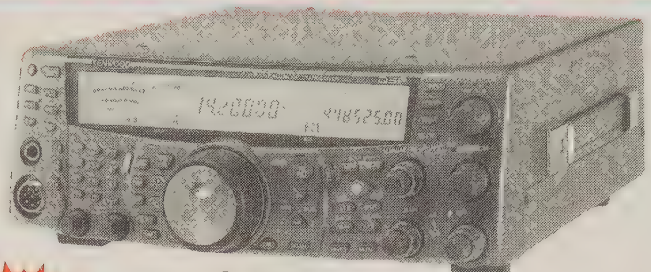
OPTIONS		2 METERS										DUAL and TRI BAND										440 MHZ						1200 MHZ	220 MHZ			HRO Price
		2SAT	2GAT	2GXAT	2SRA	T2A T2H	T22	2iA	02AT	P2AT	2AT	24AT	D1A	V21AT	W2A	W21AT	W31A W32A T7A/H	T8A T81A	X21AT	X2A	Z1A	4SAT	4GAT	4SRA	4iA	04AT	P4AT	12GAT	3SAT	03AT	P3AT	
Packs	BP-3		*						*		std												*			std		*		std		$65 95
	BP-8		*						*		*												*			*		*		*		$99 95
	BP-82	*			*							std			*					*		*		*					*			$83.95
	BP-83	*			*							*			*					*		*		*					*			$90 95
	BP-84	*			std							*			std					std		*		std					*			$99 95
	BP-85	*			*							*								*		*		*					*			$119 95
	BP-131																		*													$119.95
	BP-131A													*																		$59.95
	BP-132																		*													$139.95
	BP-132A			*										*																		$91 95
	BP-157A													*																		$85 95
	BP-160			*																												$66.95
	BP-171						*										*				*											$29.95
	BP-172					*	*										*				*											$69.95
	BP-173					*	*										*				*											$99.95
	BP-180					*	*										*				*											$83 95
	BP-195																															$42.95
	BP-196																															$53 95
	BP-198																	*														$59 95
	BP-199																	*														$70 95
	BP-200																	*														$85 95
Battery Cases	BP-4		*						*		*												*			*		*		*		$35.95
	BP-90	*			*							*			*					*		*		*					*			$35 95
	BP-130												*						*													$24.95
	BP-130A			*										*																		$35.95
	BP-170						*										*				*											$35.95
	BP-194					*																										$18 95
	BP-197																	*														$24 95
	CM-12		*						*														*			*		*		*		$49.95
Cables	CP-1		1						1		2												1			1		1		1		$26 95
	CP-11		3						*		2												3			*		3		*		$40.95
	CP-12	*				*				*		*					*				*	*					*		*		*	$36 95
	CP-12L																	*														$36 95
	CP-13			*	*								*	*	*	*			*					*								$36.95
	CP-13L				*			*							*					*				*	*							$40.95
	OPC-254	*				*				*		*					*				*	*					*		*		*	$14.95
	OPC-288			*	*			*						*	*				*	*				*	*							$19 95
DC-Cony	DC-1										*																					$40.95
Speaker Mikes	HM-46	*		*		*			*	*	*	*		*		*	*	*	*		*	*				*	*		*	*	*	$59 95
	HM-46L		*					*															*		*			*				$59.95
	HM-54	*		*		*			*	*	*	*		*		*	*	*	*		*	*				*	*		*	*	*	$79.95
	HM-65				*								*		*	*				*				*								$61 95
	HM-70				*								*		*	*				*				*								$66 95
	HM-75					*								*		*	*	*	*		*											$79.95
Headset	HS-51	*	*	*		*		*	*	*		4		*		*		*	*			*	*		*	*	*	*	*	*	*	$79 95
	HS-85																*				*											$84.95
Mounting Brackets	MB-25		*																				*					*				$41.95
	MB-30	*		*	*					*		*	*	*	*	*	*		*	*	*	*		*			*		*		*	$29 95
Internal Options	UT-40		*																				*									$79 95
	UT-49	*		*																		*							*			$59 95
	UT-86			*																												$69 95
	UT-93																				*											$59.99
	UT-94																*															$55 95
Options	BA-12	*																				*							*			$29 95

1 For charging BP-3, BP-5A, BP-7, BP-8, BP-70 2 Optional DC-1 is required 3 Optional AD-12 is required 4 Except for full duplex operation

KENWOOD

HF TRANSCEIVERS

All Mode-All Band



NEW!

TS-2000

$TBA

HRO Price

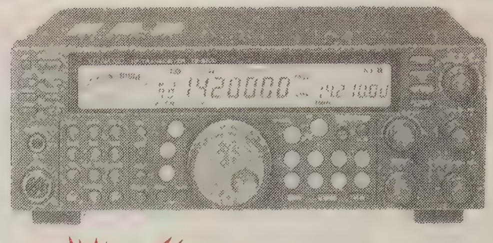
The TS-2000 has not been approved by the Federal Communications Commission. This device is not and may not be offered for sale, lease or sold or leased until the approvals of the FCC have been obtained.

Kenwood is currently developing an all band all-mode transceiver. A single unit covers HF / 50 MHz / 144 MHz / 440 MHz / 1200 MHz bands with SSB, CW, FSK, AM and FM modes. Output will be up to 100 watts (440 MHz, 50 watts; 1200 MHz, 10 watts). It is equipped with independent 144 / 440 MHz sub-band reception (AM / FM modes only). Simultaneous reception on two bands is possible: HF by V/U, V by V, U by U and V by U. A typical application might be to gather local information on 144 / 440 MHz at the same time as using HF for long range operation. The transceiver will be available in three models: standard desk unit, standard version with a remote head, and a "black box" model for computer only control. (PC software will be provided.)

The TS-2000 will be equipped with an IF DSP for the main band (AF DSP for sub-bands). Features a combination of digital IF filters and IF DSP tuning. The digital IF AGC (controlling IF gain via DSP) allows setting the time constant separately for each mode. The IF auto-notch function makes it easy to remove interference while automatically tracking with DSP-based adaptive filtering. The AF stage beat canceller is capable of eliminating multiple beats at the same time. Manual operation (manual notch for dealing with a single wave) is also permitted, which is convenient for CW use. For noise reduction there is a choice of NR1 (line enhance for SSB) and Kenwood's original NR2 (SPAC) for CW operations. The operator can make use of CW auto-tuning, while the availability of a DSP for SSB / CW / FSK / AM variable demodulation puts this transceiver a cut above analog equipment.

Kenwood has built in its own 2-chip TNC. Packet cluster information can be displayed on the LCD. The KISS II system has the Commander and Transporter built-in. It has been necessary to have 2 FM transceivers–the Commander and the Transceiver–the latter is now effectively built in to the transceiver. There, just one FM transceiver (TH-D7A or TM-700A) is needed to conduct HF operations by remote control.

Other features include a built-in auto antenna tuner (HF / 50 MHz) with present memory; Auto-tracking satellite functions (cross-mode compatible) using IF DSP; ±0.5 ppm high-stability oscillator and optional mobile head remote controller for vehicle installation.



HRO
Discount Price
$1099.95

TS-570D(G) – $1749.00

Suggested List Price

The TS-570 HF rig is perfect for base or mobile operation.

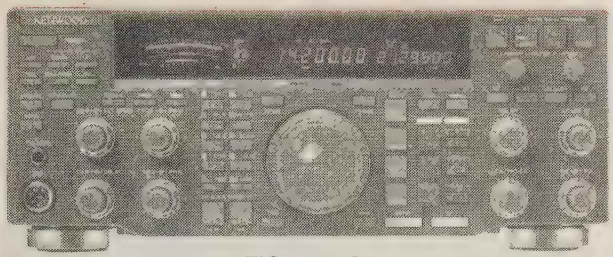
- 500 kHz to 60 MHz general coverage receiver.
- Transmit on amateur bands from 160 to 10 meters.
- Variable transmit output 5 to 100 watts in 5 watt increments.
- 16-bit DSP AF signal processing.
- Large LCD display.
- Alphanumeric sub-display provides menu, mode guidance, split frequency, digital filter selection.
- Full scanning capabilities: variable scan speed. Scan across channels, groups of 10, all except locked out channels, or a frequency range between two channels.
- Enhancement includes noise reduction for CW and SSB, audio equalization, slope tuning and automatic IF filter bandwidth.
- New "soft touch" keys.
- Two antenna ports plus a packet port.
- Automatic antenna tuner.
- 100 memory channels.
- 10 key direct entry.
- 57600 bps PC control.
- Full/semi break-in CW.
- Built-in electronic keyer with 0 to 100 WPM and dual key inputs (for paddle and straight key) and manual weight.
- CW message memory / reverse mode.
- Eleven CW DSP filters.
- CW auto tune mode links with RIT without changing transmit frequency.
- CW auto tune enables automatic zero-beating for CW operation.
- TX sound quality monitor with 9 steps.
- NR1(SSB): operator controlled in 9-steps or automatically tracks signal.
- NR1 and NR2 settings reconfigured automatically when modes change.
- "One-touch" DSP filter wide mode.
- RCP-2 remote control software.
- RS-232 com port.
- Opt. voice synthesizer VS-3.
- Optional filters: YK-88C-1 (500 Hz) and YK-88CN-1 (270 Hz) for CW. YK-88SN-1 (1.8 kHz) for SSB.

Kenwood HF Specifications

		Power Supply		Current Drain		Power											
Model	Receiver Frequency Range	50/60 Hz AC	DC	Xmit	Rec	AM	FM	SSB	CW	FSK	FSK Shift	Mike Z	Receive Circuitry	Sensitivity	RIT / XIT	Notch Filter	Audio
TS-2000*						100	100	100	100	100							
TS-870S	101 kHz - 30 MHz		13.8 V	20.5 A	2.0 A	25	100	100	100	100	(1)	500 W- 50 kW	Quadruple Conversion	<.1mV SSB,CW,FSK	±9.99 kHz	> 45 dB	1.5 W
TS-570D(G)	500 kHz - 30 MHz		13.8 V	20.5 A	2.0 A	25	100	100	100	100	(1)	500 W- 50 kW	Double Conversion	<.4mV SSB,CW,FSK	±9.99 kHz	–	1.5 W
TS-570S(G)	500 kHz- 30 MHz, 6M		13.8 V	20.5 A	2.0 A	25	100	100	100	100	(1)	500 W- 50 kW	Double Conversion	<.4mV SSB,CW,FSK	±9.99 kHz	–	1.5 W
TS-50S	500 kHz - 30 MHz		13.8 V	20.5 A	1.5 A	25	100	100	100	N/A	170 Hz	600 W	#	< .25 mV	>±1.1 kHz	–	2 W
TS-60S	50 - 54 MHz		13.8 V	20.5 A	2.0 A	25	90	90	90	N/A	170 Hz	600 W	#	< .25 mV	>±1.1 kHz	–	2 W

# Double Conversion SSB, CW, AM; Triple FM (1) 170, 200, 425, 850 Hz *Output on 440MHz 50 W and 100 MHz 10 W

HF



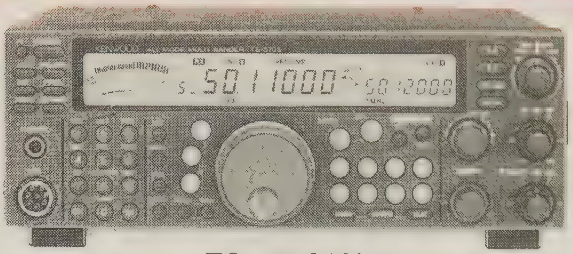
TS-870S

$2399.95
HRO Discount Price

DSP at the IF stage is now a reality. Kenwood's TS-870S brings signals out of the noise with state-of-the-art DSP chips. Computer operation and control is possible with MS windows software included and a built-in RS-232C port.

- 100 kHz-30 MHz general coverage receiver with dual VFO.
- 100 watts output, 25 on AM.
- Multiple scanning functions.
- Multi-function digital filtering.
- Dual-mode noise reduction. Variable AGC. Beat canceler and automatic notch filter.
- Optional voice synsthesizer (VS-2).
- Selectable voice equalizer, speech processor, and transmit equalizer.
- VOX and QSK.
- Full function CMOS Super Keyer II.
- Built-in automatic antenna tuner.
- Two selectable antenna terminals with SO-239 connectors. External receiver antenna output jack.
- RCP software included. RCP-2 from Kenwood .
- Easy menu system for quick setting of functions.
- Built-in tone encoder.
- High-quality 60-second digital recording unit option (DRU-3A).

HF + 6 Meters



TS-570S(G)

$1329.95
HRO Discount Price

The TS-570S(G) has all the features of the TS-570D(G) with the addition of 6 meters. Operation on 6M includes the spectacular DSP system built-in, 100 watts output and Preset Auto Antenna Tuner.

Portable Emergency Kit

AREC-Kit

Kenwood's new concept in disaster communications is the **AREC-Kit** designed for instant set up and use in the most extreme field conditions. Includes six TH-G71A HT's, a TM-V7A and two UBZ-LF14YK FreeTalk™ HT's plus many accessories needed in field conditions. Contact your nearest HRO for more details. **Suggested List Price: $7800.00**

For More Savings Call HRO for Information About Special Offers

HF Accessories

Option	Model	950 SDX	940S	930S	850S	870S	570D 570S	450S 690S	440S	430S	140S 680S	50S	60S	HRO Discount Price
Microphone Hand	MC-43S	std	std	std	std		*	std	std	std	std	*	*	$59.95
Hand	MC-47						*					std	std	$59.95
Desk	MC-60A	*	*	*	*		*	*	*	*	*	*	*	$139.95
Desk	MC-80	*	*	*	*		*	*	*	*	*	*	*	$109.95
Desk	MC-90	*					*							$249.95
Filters 500Hz CW	YG-455C-1	std	*	*	*			*			*			$149.95
500Hz CW	YK-88C-1	std	*	*	*		*	*						$129.95
270Hz CW	YK-88CN-1	*			*		*	*						$129.95
1.8kHz SSB	YK-88SN-1	*			*		*	*						$129.95
500Hz CW	YK-107C											*	*	$129.95
Hi Stability Oscillator	SO-2	std			*		*	*				*	*	$169.95
Headphones	HS-5	*	*	*	*	*	*	*	*	*	*			$79.95
	HS-6	*	*	*	*	*	*	*	*	*	*			$59.95
External Speaker	SP-31				*									$99.95
	SP-50B						*		*	*	*	*	*	$55.95
	SP-23						*	*						$76.95
	SP-950	*												$139.95
Voice Synthesizer	VS-2	*			*			*						$69.95
	VS-3						*							$39.95
Antenna Tuner	AT-50											*		$339.95
Mobile Mount	MB-13											*	*	$55.95
	MB-430						*	*	*	*	*			$49.95
Power Supply	PS-40											*	*	$199.95
	PS-52				*									$279.95
	PS-53						*	*				*	*	$269.95
Voice Memory	DRU-2	*			*									$134.95
	DRU-3A						*							$129.95

KENWOOD

HF Mobile

HRO
Discount Price
TS50S $699.95

TS-50S
$1149.00
Suggested List

This HF mobile has all-mode operation (AM, CW, SSB and FM) with 100W on CW / SSB / FM and 25 watts on AM. It has 2 VFO's and 100 memories. Compact size and weight make it a great mobile rig.

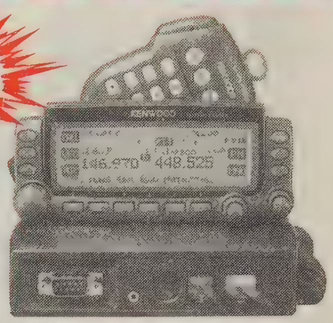
- Speech processor.
- 500 kHz–30 MHz general coverage receiver.
- DDS with "Fuzzy" control logic.
- Weighs 6.4 lbs.
- Full /semi break-in.
- Convenient menu programming.
- All mode squelch.
- Automatic gain control (slow / fast).
- IF shift and TF set.
- Computer control (optional).

Kenwood Power Cables

Part Number	Radio	HRO Price
PG-2Z	TS-140, 690, 790, 450, 850, 130, 440, 570	$37.95
PG-2N	TM-2530/ 50/ 70, 721, 621A, 221/ 321/ 421, 241, 231/ 431/ 531, 251/ 451/ 551, 255/ 455, 261/ 461, 441, 201B, 401B, 541, 631, 642A, 731, 741, 941, 732A, 733A, 642A, 742A, 942A, TR-751A	$17.95
PG-2W	TH-26, 46, 28, 48, 79, 235A	$17.95
PG-2Y	TS-50S/60S	$39.95
PG-3J	TH-22AT, 26, 27, 46, 47, 79A, 235A	$37.95

2 m / 70 cm Dual Band

HRO
Discount Price
D700A $629.95



TM-D700A
$779.95
Suggested List

- Output 50 W VHF; 35 W UHF.
- Receives 118-1300 MHz (cellular blocked).
- Full dual-band operation.
- Alphanumeric dot-matrix LCD amber display.
- Easy-to-use menu system.
- 200 memories.
- Built-in 1200 / 9600 bps TNC.
- Advanced APRS! features.
- Satellite packet ready.
- DX packet cluster.
- Remote head installation only (kit included).
- Tone frequency scan.
- Visual scan.
- PC programmable w/ PG-4S.
- Backlite microphone with alpha-numeric input.
- Wireless remote control.
- SkyCommand II control.
- SSTV control.
- Digital code squelch (DCS) with frequency ID scan.
- Digipeater operation.
- GPS / VC-H1 / PC port.
- Optional voice synthesizer.

Kenwood VHF / UHF Specifications

		Current Drain				
Model	DC Power Supply	Transmit	Receive	Output Power	Sensitivity	HRO Price
TM-261A	13.8 V	11 A	0.6 A	50 W	<.16 mV	$179.95
TM-642AD*	13.8 V		1.2 A	50W/25†	<.16 mV	$739.95
TM-742AD	13.8 V	11.5 A	1.2 A	50W/35U	<.16 mV	$639.95
UT-50S*		11.5 A	1.2 A	50 W	<.16 mV	$339.95
UT-220S*		7 A	1.2 A	25 W	<.16 mV	$339.95
UT-1200*		6.5 A	1.2 A	10 W	<.16 mV	$399.95
TM-461A	13.8 V	10 A	0.9 A	35 W	<.16 mV	$449.95
TM-G707A	13.8 V	11.5 A	1.2 A	50W/35W	<.16 mV	$329.95
TM-V7A	13.8 V	11 A	0.6 A	50W/35W	<.16 mV	$459.95

† 220 MHz *These modules used by TM-641, TM-942, TM-741A also.

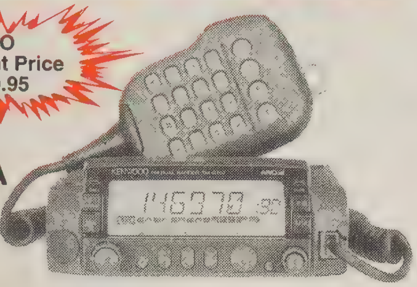
Kenwood VHF Accessories

Option	Model	211A 411A	221A 321A 421A 521A	231A 331A 431A 531A	241A 441A 541A	251A 451A 551A	255A 455A	261A 461A	711A 811A	751A 851A	2530A 2550A 2570A	4100A	621A 721A	631A 731A	732A	733A	642A 742A	641A 741A	941A	V7A	HRO Price
Microphone Hand	MC-43S	*	*	*					*	*	*	*	*	*							$59.95
Hand	MC-44DM		*	std	std									std							$79.95
Hand	MC-52DM			*	*																$79.95
Hand	MC-53DM					*	*	std								*	std			std	$79.95
Desk	MC-60A	*	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*		*	$139.95
Desk	MC-80	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		*	$109.95
Modular Mike Switch	MJ-89							*									*				$69.95
Modular Plug Adapt	MJ-88							*													$32.95
External Speaker	SP-50B	*	*	*	*			*		*	*	*	*	*	*			*	*	*	$55.95
Voice Synthesizer	VS-2											*									$69.95
	VS-3																			*	$39.95
Noise Filter	PG-3B	*	*	*	*			*		*	*	*	*	*	*		*	*	*	*	$29.95
Tone	TU-7									*	*	*									$54.95
	TSU-5		*																		$59.95
	KQT-8			*	*								*	*							$49.95
	TSU-7														*		*	*	*		$59.95
	TSU-8						*	*							*		*	*	*		$59.95
Mobile Mount	MB-201		*	*	*			*							*					*	$25.95
Power Cable	PG-2N	*	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	$17.95
Data Cable	PG-5A																			*	$15.95
Extension Cables	DFK-3C																*			*	$44.95
13'	DFK-4C																*			*	$64.95
22'	DFK-7C																*			*	$99.95

MOBILES

2 m / 70 cm Dual Band

HRO
Discount Price
$329.95



TM-G707A

$510.00
Suggested
List Price

The TM-G707A FM dual bander has been specifically designed for mobile operations. The extra large amber display has a four step dimmer for easy viewing in all lighting conditions.

- Simple operation. Programmable memory system stores five operating profiles with recall by pushing just one button.
- 180 memory channels with Memory Name Function which identifies each memory channel with up to 7 alphanumeric characters.
- Multiple scan functions include priority and CTCSS tone.
- Built-in duplexer.
- Memory shift for odd splits and auto repeater offset (2m).
- PC programmable w/PG-4S.
- Built-in CTCSS encoder/decoder.
- Packet ready for 1200/9600 BPS packet including front panel connector.
- MC-53DM multi-function backlit mike with DTMF.
- Optional quick release detachable front panel.

HRO
Discount Price
$459.95

Great for APRS

TM-V7A

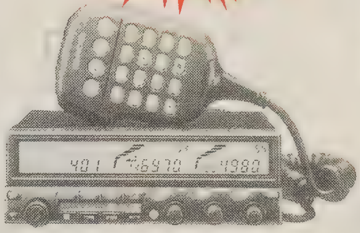
$739.95
Suggested
List Price

The TM-V7A is easy-to-operate with its cool-blue display modes.

- Simultaneous receive on VHF and UHF plus simultaneous receive of two frequencies on the same band, voice and data.
- 50 watts output on 2 meters (144–148 MHz), 35 watts output on 70 cm (438 – 450 MHz).
- Five-in-one programmable memory. Five different operating profiles,
- Multiple scan functions and tone scan.
- Voice synthesizer (with optional VS-3).
- Built-in duplexer.
- Visual scan with a pause.
- 280 memory channels (180 when using Memory Name Function which identifies each channel with up to 7 alphanumeric characters.).
- Built-in CTCSS encoder/decoder.
- Packet ready for 1200/9600 BPS packet. Includes front panel connector.
- MC-53DM multi-function backlit mike with DTMF.
- Programming software with optional PG-4S..
- Optional quick release detachable front panel (DFK-4C 13' and DFK-7C 22' cables).

Multi Band

HRO
Discount Prices
TM642AD $739.95
TM742AD $639.95



TM-642AD
2m & 220 MHz Plus
$989.00

TM-742AD
2m & 440 MHz Plus
$959.00
Suggested List Prices

These multi-band FM transceivers provide dual band (144 / 440 MHz or 144 / 220 MHz) operation and the capacity to expand to triple band by adding an optional module for 50 MHz, 220 MHz, or 1200 MHz.

- Extended 2 meter receive .
- TM-742AD covers 144 MHz and 440 MHz at 50 W on 2m, 35 W on 440 MHz,
- TM-642AD covers 144 MHz and 220 MHz at 50 W/25W.
- Multiple scan modes.
- Built-in DTSS with pager and CTCSS encode.
- Backlit microphone.
- Independent receive with display for each band. Choose single, dual or triple band operation. Triple band cross-band operation is available.
- 100 memory channels plus a call channel for each band.
- Direct frequency input to the VFO from DTMF microphone.
- Remote front panel mount kits optional.

Check Our Secure Web Page http://www.hamradio.com for Manufacturers Coupons

Single Band

TM-541A – 1.2 GHz
$449.95
HRO Discount Price

This compact 1.2 GHz FM transceiver covers 1240-1300 MHz. It has 10 watts output on high power, 1 watt on low.

- 20 multifunction memory channels.
- Backlit microphone included.
- Optional DTSS unit allows selective calling and paging (DTU-2).
- Encode built in. Decode with KQT-8 option.
- Needs external 13.8 VDC power supply.

HRO
Discount Prices
TM261A $179.95
TM461A $449.95
TM331A $499.95

TM-261A – 2 meters
TM-461A – 70 cm
TM-331A – 220 MHz

Mobile communications just got easier with these fully equipped, user-friendly single banders. Both have high RF output, rugged construction (MIL-STD), 60+2 (call) multi-function memory channels, memory name function with 6-digit alphanumeric display, DTSS selective calling, multi scan capability, dual menu system, multi-function microphone and wireless cloning function. They also have air-band receive, auto repeater offset (TM-261A), repeater reverse switch, built-in CTCSS tone encoder (decode optional), busy channel lockout, auto power off and time-out timer.

KENWOOD

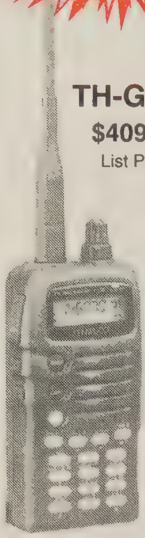
HANDHELDS

Dual Band

HRO
Discount Prices
G71A–$269.95
G71A-HP–$269.95

TH-G71A

$409.95
List Price



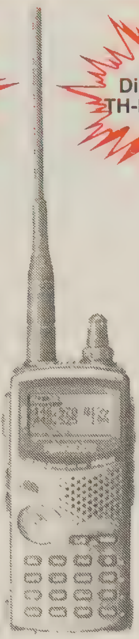
Looking for a compact, high performance 2 m / 70 cm dual-bander with an affordable price tag? The TH-G71A is the right rig. It fits easily in the palm of your hand.

- Backlit keypad.
- 6 watts (VHF), 5.5 watts (UHF) at 13.8 VDC.
- PC programmable with 200 memories with optional PG-4P.
- CTCSS tone scan.
- Wide frequency coverage including aircraft.
- DTMF memory.
- TM-V7A remote control (DTMF remote).

HRO
Discount Prices
TH-D7A(G) $469.95

TH-D7A(G) With APRS Operation

$519.95
Suggested List Price



Kenwood's deluxe dual band handheld features Automatic Packet Reporting System.™ APRS allows you to track mobile stations on a map on a computer screen. The TH-D7A(G) includes a 1200 / 9600 built-in TNC and a program for dealing with date formats supported by APRS. Its display shows information each time correct APRS data is received; you do not need a computer. If you do not have a GPS receiver, you can manually enter your position. The TH-D7A(G) has jacks to connect to your computer and to a GPS receiver.

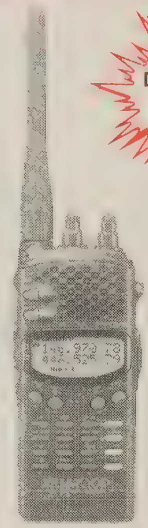
- 2m / 440 MHz dual-band.
- Backlit Keypad.
- Aircraft receive and dual receive on same VHF band for voice and data.
- Call channel and CTCSS.
- 3 scan modes and 200 memories.
- DX packet cluster monitor.
- Wireless remote control.
- 16 digit, 10 DTMF autodial memories.
- VC-H1 messaging control.
- Large (12 digits X 3 lines) dot-matrix LCD.

HRO
Discount Price
TH-79KSS
$379.95

TH-79KSS

5 watts

$579.95
Suggested List Price



Kenwood's TH-79KSS Deluxe dual-band handheld offers operating ease and powerful performance in a compact, lightweight design.

- Skip-Scan feature included.
- Dot-matrix LCD and menu system. Displays frequency data and a menu system with full alphanumeric function and settings
- 5.0 watts on both 2m and 440 MHz with PB-34 NiCd battery or with 13.8 VDC operation.
- 82 non-volatile memory channels, with ID. An alphanumeric ID (max. 7 characters) can be stored with each channel. No battery backup is needed.
- Features full-duplex cross-band operation. Can simultaneously receive two frequencies even on the same band.
- Equipped with a high efficiency FET power module.
- Guide function on the LCD panel display eliminates the need to carry a manual.
- DTMF key pad with DTMF memory function.
- Dual Tone Squelch with page.

Single Band

HRO
Discount Prices
22AT–$179.95
42AT–$319.95

TH-22AT

2m - $299.95

TH-42AT

70 cm - $389.95
Suggested List Prices

High Power
TH-22AT-HP
5 watts–
$229.95

These 2m or 440 MHz transceivers are ultra compact hand helds.

- Extended receiver coverage 136 - 174 MHz on the TH-22AT.
- Five watts output with optional PB-34 battery or 13.8 VDC.
- 3 selectable power output levels.
- Operates from 5.0 to 16 VDC allowing easy connection to the car battery or power supply.
- 40 memories with odd offset capability in one memory.
- Selectable memory channel number display mode.
- Multiple scanning functions.
- Tone alert system with received time indication.
- Wireless cloning function.
- Built-in CTCSS tone encoder, Time Out Timer, & busy channel lock out.
- DTSS Dual Tone Squelch System with pager function built-in.
- DTMF memory for auto-dial operation, five 15-digit channels.

Kenwood Handheld Specifications

Model	Freq Range	Power Supply	Power Out †	Current Transmit	Current Receive	Sensitivity	Height in (cm)	Width in (cm)	Depth in (cm)	Weight oz (g)	HRO Discount Price
TH-22AT	144-148 MHz	6 VDC	3 W	1.3 A	45 mA	<.16 mV	4.6 (11.7)	2.2 (5.6)	.96 (2.5)	10.2 (290)	$179.95
TH-42AT	438-450 MHz	6 VDC	2.5 W	1.6 A	45 mA	<.18 mV	4.6 (11.7)	2.2 (5.6)	.96 (2.5)	9 (242)	$319.95
TH-G71A	2m & 440 MHz	6 VDC	2.5 W	1.2 A	70 mA	<.18 mV	4.4 (11.2)	2.1 (5.4)	1.3 (3.3)	11.6 (330)	$269.95
TH-G71A-HP	2m & 440 MHz	6 VDC	2.5 W	1.2 A	70 mA	<.18 mV	4.4 (11.2)	2.1 (5.4)	1.3 (3.3)	11.6 (330)	$269.95
TH-79KSS	2m & 440 MHz	7 VDC	5 W	1.3 A	80 mA	<.18 mV	5.1 (12.9)	2.1 (5.6)	1.0 (2.5)	15.0 (400)	$379.95
TH-D7A (G)	2m & 440 MHz	6 VDC	5 W	1.8 A	45 mA	<.18 mV	4.75(11.9)	2.25(5.4)	1.5(3.5)	12.0(340)	$469.95

† Higher power output with optional batteries

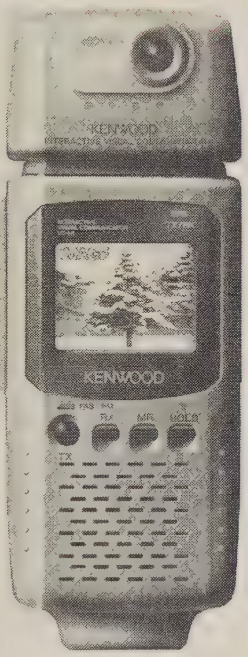
FAMILY RADIO SERVICE

SSTV

Portable SSTV VC-H1

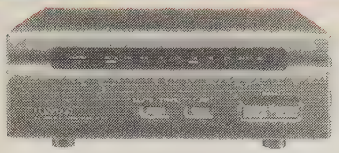
$584.00
Suggested List Price

HRO
Discount Price
$299.95



The VC-H1 combines an image scan converter, CCD camera, and LCD monitor in a compact battery operated unit. Hook it up to your transceiver and start sending and receiving color images. It runs on 110 VAC or AA batteries making it perfect for portable operations like Field Day or special events. With the 1.8-inch color TFT screen, you can view incoming images or view your own prior to transmission. Has built-in mike and speaker. Stores up to 10 pictures. The VC-H1 can be controlled from a PC. PC connection with optional kit KCT-24S (Windows 95 required) to save pictures in JPEG format The PG-4t is a mobile connection cable option for $49.95.

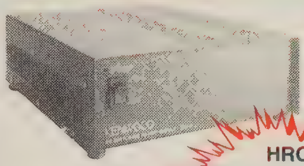
Antenna Tuner



AT-50

A fully automatic antenna tuner to use with the TS-50 and other 100 watt HF transceivers. Mobile or fixed operation. Can be installed remotely. **HRO Price $339.95**

Power Supplies



PS-40

HRO
Discount Price
$199.95

The PS-40 switching power supply is is rated at 23 amps and similar in size to the TS-50. The supply is for 110-230 VAC. Weighs only 4.5 pounds.
Suggested List Price $229.95

PS-52

Designed for the TS-850 operating all modes for the rated periods of time. Provides 13.8 VDC at 22.5 A. Has a cooling fan and protection circuits.
HRO Price 279.95

PS-53

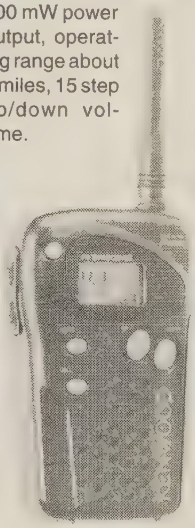
Designed for the TS-570 D/S(G) operating all modes for the rated periods of time. Provides 13.8 VDC at 20.5 A. Has a cooling fan and protection circuits.
HRO Price $269.95

Family Radio Service

HRO
Price
$59.95

FreeTalk™*e* UBZ-AL14

The FreeTalk™*e* is an economical personal radio with 14 channels, 500 mW power output, operating range about 2 miles, 15 step up/down volume.



HRO
Discount Price
$99.95

FreeTalk™ UBZ-LH14

$134.95
Suggested List

The FreeTalk™ FRS HT radios offer a professional-style unit for the busy outdoorsmen. These are the ultimate way for outdoorsmen to keep in touch. These radios offer the same voice scrambling technology used by law enforcement agencies. Available in black, yellow or platinum. Please specify color when ordering.

- 14 selectable UHF channels.
- 2 digit LCD backlit display.
- Low battery alert.
- Moisture proof construction..
- Built-in belt clip.
- Up to 30 hours of operation with alkaline cells and up to 2 miles range.

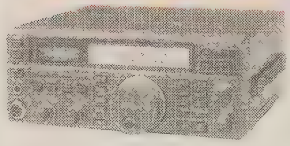
Handheld Battery Packs / Chargers

Battery	Voltage	Rating MAH	Desk Charger	Radio Series	HRO Price
KNB-5A	7.2	800	KSC-7/8	TH-25/26/45/ 46/55/75/77	$59.95
PB-32	6	600	KSC-14	TH-22AT/ 42AT/79A	$66.95
PB-33	6	1200	KSC-14	TH-22AT/ 42AT/79A	$79.95
PB-34	9.6	600	KSC-14	TH-22AT/ 42AT/79A	$89.95

Kenwood Handheld Options

Option	Model	21BT 31BT 41BT	22AT 42AT	26AT 46AT	27AT 47AT	28A 48A 78A	25AT 45AT 75AT	77A	79A (D)	215AT 315AT 415AT	225 AT	235	2600A 3600A	HRO Price
Headset	HMC-3		*	*	*		*	*	*	*	*	*		$59.95
	EMC-3											*		$29.95
Speaker Mike	SMC-32	*	*	*	*	*	*	*	*	*	*	*	*	$52.95
	SMC-33		*	*	*	*		*	*			*		$65.95
	SMC-34		*	*	*	*		*	*			*		$39.95
Prog. Tone Decoder	KQT-8						*							$49.95
	TSU-7			*		std								$59.95
	TSU-8		*											$59.95
DC/DC Converter	PG-2W		*		*	*						*		$17.95
FilteredLighter Cord	PG-3J				*			*				*		$37.95
Base Quick Charge	KSC-14		*						*			*		$39.95
Battery Case	BT-9		*						*					$29.95
Softcase	SC-33					*								$21.95
Wall Charger	BC-17		*											$29.95

YAESU



FT-840

$699.95

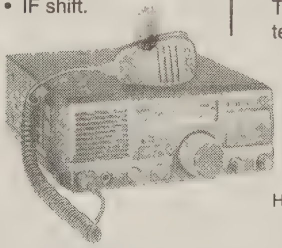
HRO Discount Price

The FT-840 blends digital frequency synthesis with the operating convenience and affordability of its predecessor, the FT-747GX. As a back-up, mobile, or main station transceiver, the FT-840 has top-of-the-line quality, high-tech performance, and a wealth of features at an affordable price.

The intense LCD display affords sharp visibility in bright sunlight. Die-cast heat sink and internal thermally switched fan keep the FT-840 running cool. Modular design circuit boards ensure operating efficiency.

The FT-840 features a low noise front end with FET RF amplifier design. Two DDSs and magnetic encoder give silent, smooth tuning and fast switching. Twin band-stacking VFOs and automatic 10 m FM repeater offset with selectable CTCSS provide the best 10m repeater operation.

- General coverage receiver 100 kHz to 30 MHz.
- Transmit on amateur bands 160-10 m.
- Direct digital synthesis (DDS).
- FM repeater operation with automatic 10 meter repeater offset.
- IF shift.
- 100 memories (independent transmit/receive per memory).
- Selectable CTCSS encode with optional FM-747.
- CW reverse feature.
- Choice of two optional antenna tuners: FC-10 Matching External Tuner or FC-800 External Remote Tuner.



FT-600

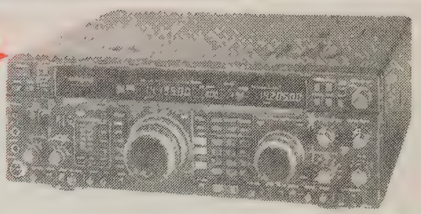
$799.95

HRO Discount Price

The compact FT-600 has a full coverage receiver from 50 kHz to 30 MHz with transmit on the amateur bands from 160 to 10 meters. It excels as an easy-to-use base station or mobile radio.

- Direct Digital Synthesis (DDS) and dual conversion receiver.
- 100 memory channels (4 banks of 25).
- Front mounted speaker with high audio output.
- Direct keypad frequency entry.
- Alphanumeric display.
- Selectable noise blanker.
- All modes USB, LSB, CW, AFSK & AM.
- Dual watch on receive.
- Transmitter output is 100 watts with 25 watts AM carrier.
- Has tuning steps of 10 Hz/100 Hz on CW/SSB and 100 Hz/1 kHz on AM.
- Accessories available include: FC-800 automatic antenna tuner, FIF-232C computer interface, FP-800 power supply and a complete selection of filters.

NEW!



FT-1000MP

$2399.95

HRO Discount Prices

The FT-1000MP HF transceiver works in all modes, SSB, CW, FSK, AM, FM, Packet, but it is optimized for digital modes. The enhanced digital signal processing (EDSP) system provides four random-noise reduction settings, selectable bandpass filtering with adjustable low and high cut responses, and transmitted audio enhancement. An automatic seeking EDSP notch filter identifies and eliminates interfering heterodynes and carriers should they appear in the passband.

Two VFO knobs allow individual adjustments to the main and sub VFO's to provide in-band dual receive, even on different modes and bandwidths. The "Shuttle-jog™" tuning enhancement allows quick QSY up or down the band with a slight turn of the wrist. Direct digital synthesizers (DDS) provide 13 extremely fine tuning steps, selectable down to 0.625 Hz per step. A full-featured contest memory keyer, provides CQ message generation along with contest numbers.

Built-ins: a lightweight switch-mode AC power supply and a high-performance high-speed automatic antenna tuner, with 39 frequency information memories.

FT-1000MP features:

- General coverage receiver 100 kHz to 30 MHz.
- Power output 100 watts.
- Dual in-band receive; separate S meters.
- Collins mechanical filters: 455 kHz / 2.75 kHz SSB built in. A 455 kHz / 500 Hz CW is optional.
- Wide receiver dynamic range with separate, optimized FET RF preamps for high and low bands.
- Cat system capability with built-in RS-232C level converter.
- Transverter jack for VHF/UHF operation (display indicates actual frequency).
- Selectable antenna jacks. Separate receive-only antenna jack also included.
- Custom configuration via new menu system.
- Quick memory bank (QMB) system for instant recall of important memories.

Remote Control FH-1
for FT-1000MP

The **FH-1** remote control will enhance the operating flexibility of your FT-10000MP. It permits remote control of the contest memory keyer, VFO/memory and main/sub VFO. It connects by a 3.5 mm miniature mono plug to the REMOTE jack on the rear panel of the FT-1000MP. **HRO Discount Price: $88.95**

The Digital Specialist

FT-1000MP Mark V

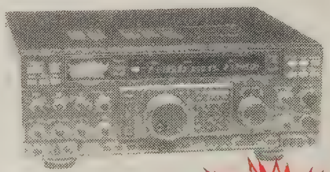
$3399.95

HRO Discount Prices

The FT-1000MP Mark V has all of the features of the FT-1000MP plus major new enhancements. These include a **200 watt PEP transmitter** output using a pair of Phillips BLF147 power MOSFETS and a high speed antenna tunner to handle the 200 watts. It features **Class-A power amplifier** operation at 75 watts and is front panel selectable.

The **interlocked digital bandwidth tracking system** (IDBT) to fight interference featuring Collins filters. The **variable RF front-end filter** improves receiver performance by reducing intermodulation.

Finally, there are the **enhanced ergonomics** with a multi-function shuttle jog dial with access keys for the IDBT and VRF capabilities. Includes the FP-29 power supply.



FT-1000D

$5459.00

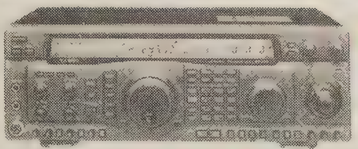
Suggested List

HRO Discount Price $4199.95

The FT-1000D employs surface-mount components, six microprocessors, and five direct digital synthesizers. Standard are: BPF-1 module for cross-band dual receive; TCXO-1 high stability oscillator; XF-C 2.4 kHz SSB filter; XF-D 2.0 kHz SSB Filter; and XF-E 500 Hz CW filter. Options are the XF-F 250 Hz CW filter; XF-455MC 600 Hz sub-receiver CW filter; and the DVS-2 digital voice recording module.

- General coverage receiver from 100 kHz to 30 MHz.
- Simultaneous dual frequency reception.
- All mode operation (SSB, CW, FSK, AM, FM, Packet). Optimized for digital communications modes.
- Transmitter output is 200 watts; 50 watts AM.
- Special features for CW operation.
- Band pass filter BPF-1 module.
- 99 memories.
- CAT system for computer control.
- Built-in power supply.

HF TRANSCEIVERS



HRO
Discount Price
$1339.95

FT-920

$2299.00

Suggested List Price

The FT-920 state-of -the-art HF / 6 m transceiver has many advanced features. It offers up to 100 watts of adjustable power on all amateur bands between 160 and 6 meters (25 watts carrier on AM) operating on SSB, CW, AM, AFSK and FSK. An FM module option is available.

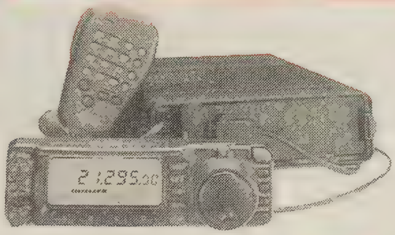
The built-in high speed automatic antenna tuner adjusts both receive and transmit. The built-in digital voice recorder allows storage and playback of incoming signals and stores up to four repetitive messages of up to 16 seconds each.

Electronic memory keyer stores CW messages including incremented, embedded contest numbers. Jacks on front and rear: connect keyer paddle to one and a computer or straight key to the other.

Receiver has Digital signal processing filters, automatic notch filter and noise reduction. The front end includes 10 input bandpass filters, PIN diode switching and optimized RF preamplifiers.

It has dual VFO's, 99 regular and 10 split memories and the ability to assign alphanumeric labels.

HF Plus 6m / 2m / 70 cm



FT-100 – $1049.95
FT-100D – $1199.95

NEW!

HRO Discount Prices

The FT-100 miniature mobile transceiver covers 160-6m plus 2m and 70cm bands. Combining a unique, user-friendly front panel with high-tech features like digital signal processing, the FT-100 performance exceeds that of many base station rigs.

The FT-100D has all the same features as the FT-100 plus the XF-117C 500 Hz CW filter, TCXO-8 high stability reference oscillator, FTS-27 CTCSS decode unit and a new, high quality speaker.

- Receive coverage 100 kHz-30 MHz, 30-970 MHz (cellular blocked).
- Transmits 160-6m, 144-148 Mhz, 430-450 MHz.
- SSB, CW, AM, FM, AFSK Packet (1200/9600 bps) operation.
- Power out: 100W (160-6m), 50W (2m), 20W (70cm)
- DSP bandpass filter, notch filter and noise reduction.
- SSB, CW, AM, FM, AFSK modes plus packet (1200 / 9600 bps).
- 200 memories and QMB (quick memory bank).
- Smart Search™ memory channel loading system.
- Dual VFOs.
- IF noise blanker.
- Built in electronic memory keyer.
- Built-in CTCSS and DCS for FM.
- Bright LCD with multi-function display.
- VOX.
- Optional FC-20 External Antenna Tuner.
- Compatible with ATAS-100 antenna system.

FT-817

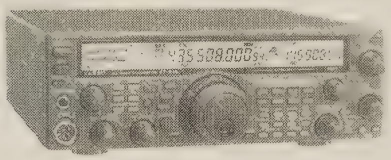
$769.95

HRO Discount Price

NEW!

5 Watt Backpack Transceiver

- Product concept: fully self-contained battery-powered low-power amateur transceiver for portable, camping, or mountain use.
- TX frequency coverage: 160-10 meters, 50 / 144 / 430-450 MHz, plus Alaska Emergency Channel (5167.5 kHz).
- RX frequency coverage: 100 kHz-56 MHz; 76-154 MHz; 420-470 MHz. (Exact frequency range may be slightly different.)
- Power output: 5 watts SSB / CW / FM with 13.8V external DC; 1.5 W AM carrier; 2.5 W SSB / CW / FM with 9.6V Ni-Cd Pack or 8 "AA" batteries (AM: 0.7 W); up to 5 W SSB / CW / FM power (max.) programmable via menu on Ni-Cd / AA cells.
- Operating modes: USB, LSB, CW, AM, FM, WFM, digital (AFSK), packet (1200/9600 FM).



FT-847

$1799.95

HRO Price

The all-purpose, all-mode FT-847 covers HF, 6m, 2m, and 440 MHz – ideal for satellite operation, packet, or any of your other ham activities.

- Crossband full duplex operation.
- 100 watts output on HF/ 6m; 50 watts on 2m / 430 MHz.
- Normal/ reverse tracking and dedicated satellite memories.
- 1200 / 9600 bps packet ready.
- DSP filters: notch, noise reduction, band pass.
- CW sidetone / pitch control.
- Direct frequency keypad entry.
- High resolution 0.1 Hz tuning steps for ultra-smooth tuning.
- Shuttle jog tuning dial.
- Built-in CTCSS / DCS encode / decode.
- Built-in low noise VHF/ UHF preamps.
- 13.8 VDC.

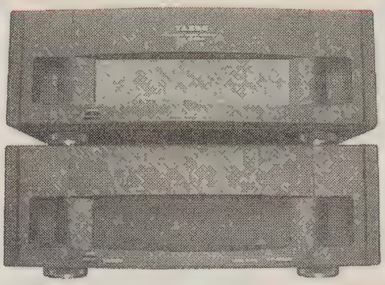
Yaesu HF Specifications

		Power Supply		Current Drain		Power Output									
Model	Frequency Range	AC	DC	Xmit	Rec	AM	FM	SSB	CW	Mike Z	Receive Circuitry	Sensitivity †	RIT/XIT Range	Audio Output	HRO Price
FT-1000D	100 kHz - 30 MHz	117/234		1050 VA	95 VA	50 W	200 W	200 W	200 W	500-600 W	Quad	< .25 mV	±9.975 kHz	2 W	$4,199.95
FT-1000MP	50kHz - 30 MHz		13.5 VDC	20 A	1.2 A	25 W	100 W	100 W	100 W	500-600 W	Double	< .25 mV	±300 Hz	1.5W	$2,399.95
FT-1000MPMKV	50kHz - 30 MHz		13.5 VDC			25 W	200 W	200 W	200 W	500-600 W	Triple	< .25 mV	±300 Hz	1.5W	$3,399.95
FT-920	100 kHz - 30 MHz, 48-56MHz		13.5 VDC	22 A	2.0 A	25 W	100 W*	100 W	100 W	500-600 W	Double	< .25 mV	±9.99 kHz	1.5W	$1,339.95
FT-840	100 kHz - 30 MHz		13.8 VDC	20 A	1.2 A	25 W	100 W	100 W	100 W	500-600 W	Double	< .25 mV	±1.25 kHz	4 W	$699.95
FT-847	100 kHz - 30 MHz, 50-54 MHz, 144-148 MHz, 430-450 MHz		13.8 VDC	22 A	2.0 A	25 W 12.5 W 2m/70cm	100 W!	100 W!	100 W!	200-10K W	Double	< .25 mV	±9.99 kHz	1.5 W	$1,799.95
FT-817	100 kHz – 56 MHz; 76 – 154 MHz; 420 – 470 MHz.		13.8 VDC			1.5 W	5 W	5 W	5 W						$769.95
FT-600	100 kHz - 30 MHz	117/234	13.5 VDC	550 VA	80 VA	25 W	100 W	100 W	100 W	500-600 W	Triple	< .25 mV	±300 Hz	2 W	$799.95
FT-100/FT-100D	Same as FT-847		13.5 VDC	22 A	1.5 A	25 W	100 W 50 W@ 20W%	100 W 50 W@ 20W%	100 W 50 W@ 20W%	500-600 W	Double	< .25 mV	±9.99 kHz	2 W	$1049.95/ $1199.95

† Sensitivity measurements for 1.8-30 MHz SSB,CW   *Optional module required

YAESU ACCESSORIES

HF Amp & Power Supply



Quadra System
$5990.00
Suggested List

HRO Discount Price $3999.95

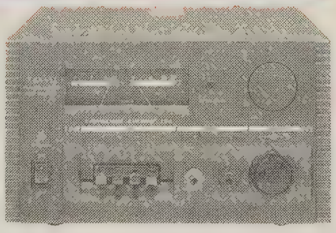
Here's all the linear amplifier you should need for operation on both HF (160 - 15 meters) and 6 meters. It is designed for automatic band switching with the FT-1000D, FT-1000MP, FT-920, FT-990 and the FT-900 HF radios.

The amp features 8 MRF150 power MOSFet transistors designed into 4 units of 2 transistors in a push-pull circuit at 48 VDC.

The separate power supply, the VP-1000 allows for easy installation. There are two input voltages, 117 VAC or 220 VAC. Output power is a function of the power supply voltages. At 220 VAC there is 1000 watts out on HF and 500 watts on 6 meters. At 117 VAC the output is 500 watts on HF.

The amplifier comes with a built-in high speed antenna tuner. It has four antenna outputs and two inputs. The multifunction omni-glow LCD display shows the status of the amplifier. There is automatic system monitoring with VSWR protection.

Power Supplies



FP-1030A

Yaesu makes two low profile switching powers supplies. The FP-1023A has 23 amps continuous and 25 intermittent. The FP-1030A is 25 amps with meters. Both operate on 110 or 220 VAC.

HRO Prices:		
	FP-1023A	$149.95
	FP-1030A	$239.95

Antenna Tuner

FC-20

$269.95 – HRO Price

Controlled from the FT-847, the FC-20 will match your HF or 6m antenna. SWR 3:1 on HF and 2:1 on 6m. 100 memories of tuning data.

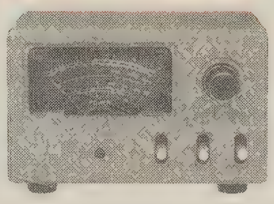
DC Noise Filter

LF-1

$26.95 – HRO Price

Especially designed for mobile use, consists of a heavy choke coil to surpress alternator DC line noise.

Meters



YS-60

$129.95
HRO Price

YS-500

$104.95
HRO Price

Meters monitor average and peak transmitter power and voltage standing wave ratio (VSWR) of antenna systems in two way radio stations from 1.6 to 60 MHz (YS-60) or 140 to 525 MHz (YS-500). YS-60 requires 12 VDC for PEP operation.

Radio Cases

Cases for Yaesu Handhelds

Cases are available for Yaesu handheld radios. Please contact your closest HRO store or call one of the toll free numbers for information on the case that matches your HT. Several options to match the various radios and the battery packs that are used.

Microphones

MH-39

$84.95 –
HRO Price

This compact mike for the FT-8500 gives you complete control of the rig from your hand.

MD-100 a8x

$125.95
HRO Price

This desk microphone features selectable low-cut filtering and high-emphasis active filtering that allow you to tailor the microphone response for optimum voice clarity or DX punch. It has a large push-to-talk switch and latching button, along with a large rotary up/down, slow/fast control for scanning.

The MD-100a8x is especially designed for the FT-1000MP and the FT-900, but can be used with the following Yaesu HF transceivers: FT-747GX, FT-757GXII, FT-890, FT-840, and FT-1000.

Charger Adapters

NC-50 Charger Adapters

The NC-50 quick charger supports most Yaesu hand-held batteries. An appropriate adapter is required. Adapters and batteries supported are shown in the table below.

Model	Batteries Supported	HRO Price
CA-7	FNB-12 / 14 /17	$22.95
CA-8	FNB-25 / 26 / 27	$27.95
CA-10	FNB-31 / 33 / 38	$14.95
CA-14	FNB-40 / 41 / 42	$25.95

Programming Kits

To Program Handhelds:

ADMS-1E
FT-10/ 40/ 11/ 41/ 50/ 51
VX-1R / VX-5R
HRO Price $38.95

ADMS-1F
VX-110 / VX-150
HRO Price $38.95

To Program Mobiles:

ADMS-2D
FT-3000 / 8000 / 8100 / 8500

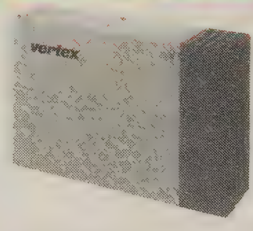
ADMS-2E
FT-90R / 2600M
HRO Price $39.95

ADMS-2F
FT-1500M
HRO Price $38.95

To Program a Receiver:

ADMS-3
VR-500
HRO Price $38.95

Repeaters



VXR-5000V /TA-DC

Covers 135-148 MHz for 2 m

VXR-5000U /TC-DC

Covers 440 MHz

- 12 VDC at 7 amp power requirement.
- 25 watts output at 100% duty cycle.
- Built-in CTCSS encode and decode.
- PC programming with optional VX VPL-1 programming cable.
- PC programmable hang and time-out timers.
- Includes DC power cable.
- Wall mount or put in a standard 19 inch rack with the optional mounting kit.
- Programming is extra.

AIRBAND

MOBILES

Air Nav/Coms

The **Aviator Pro** and **Aviator Pilot** transceivers are the only airband transceivers rugged enough to pass the MIL-STD 810 testing. The HT's store up to 50 regular memory channels and come pre-programmed with 250 book memories. Memories can be PC programmed with the optional CT-64 programming kit. Both models have 5W PEP output at 9.6VDC.

Aviator Pro
Com

VXA-100 / 6-41B

$409.95

HRO Price

The Aviator Pro is a 6 key aviation communications transceiver that includes all 760 airband channels.

Aviator Pilot
Nav / Com

VXA-100 / 16-41B

$549.95

HRO Price

The 16 key Aviator Pilot adds advanced navigation features. DVOR with TO and FROM indications, Automatic Bearing Centering System (ABCS) and large course deviation indicator (CDI) make VOR navigation a snap.

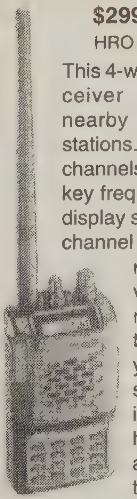
Aviator Pro II
Com + Weather

VXA-120

$299.95

NEW!

HRO Price



This 4-watt airband transceiver also scans for nearby NOAA weather stations. The 150 memory channels have direct 16 key frequency entry. The display shows frequency, channel number or alphanumeric titling viewable from the radio front or the top when it's on your belt. Headset adapter plugs into your aviation headset, intercom and external push to talk switch.

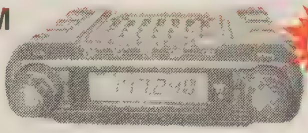
2 Meter Mobiles

FT-1500M

2 meters

$199.95

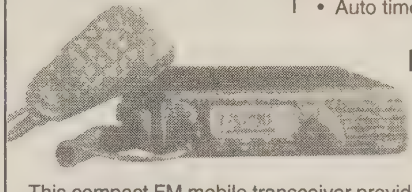
HRO Price



NEW!

This rugged mobile with pop-up control keys has wide receiver dynamic range to fight intermod in crowded urban RF-pollution areas. The unique "Weather Search" scans for the strongest channel.

- Receives 134-174 MHz.
- Transmits 144-148 MHz.
- Power output: 50/ 25/ 10/ 5 W.
- 130 memories; 6-character alpha numeric labels.
- Direct keypad frequency entry from microphone.
- Selectable channel steps.
- CTCSS encode/ decode with 50 tones & tone scan.
- Automatic repeater shift (ARS).
- SmartSearch™ automatic memory loading.
- Programmable microphone key functions.
- ADMS PC programmable.
- Battery voltage display.
- 16-digit 8-memory DTMF autodialer.
- 1200/9600 bps packet compatible.
- Auto time-out.



FT-2600M

2 meters

$199.95

HRO Price

This compact FM mobile transceiver provides 60 Watts high power output. Its expanded receiver covers 134-174 MHz.

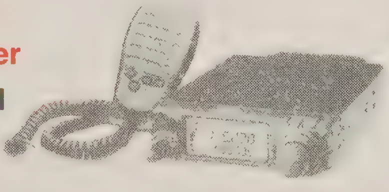
- Four power levels.
- Direct frequency entry from mike keypad.
- Advanced track tuning protects from receiver inter-modulation distortion.
- Packet capability for 1200 or 9600 baud.
- 175 memories store repeater shifts, CTCSS / DCS tones, 8-character alpha numeric labels.
- Built-in CTCSS and DCS encoder / decoder.
- SmartSearch™ seeks active frequencies.
- Multi-function LCD display.
- Extensive menu allows customization.
- ARTS auto range transponder.
- Also: time out timer, auto power off, auto repeater shift, and S-meter squelch circuit.

70 Watt High Power

FT-3000M

$399.95

HRO Price



The FT-3000M is the only 70 watt High Power mobile available with a true wide-band receiver.

- Receives 110-180, 320-520, 800-999 MHz, cellular blocked.
- 70 /50 /25 /10 watts.
- Large, alphanumeric LCD display.
- Backlit direct frequency entry DTMF mike.
- Crossband repeat (UHF to VHF only).
- Program by keyboard or PC w/ optional ADMS-2C.
- 81 memory channels.
- DCS and CTCSS encode.
- Dual display with dual watch monitoring.
- Options available: FP-800 20 amp power supply. FTS-27 CTCSS decode. DVS-4 digital voice unit. SP-7 external speaker.

2 m / 70 cm Dual Band

FT-90R

$389.95

HRO Price

Yaesu's amazingly small high-power dual band mobile is less than four inches wide yet puts out 50 Watts on 2m and 35 Watts on 440 MHz.

- Receives 100-230 MHz, 300-530 MHz and 810-1000 MHz (cellular blocked). Includes aircraft.
- Removable front panel.
- Four levels of transmit power.
- Ready for 1200 or 9600 baud packet.
- Built-in CTCSS / DCS encoders / decoder.
- 186 memories with 7-character alpha numeric labels.
- Adjustable display brightness and contrast.
- Direct keypad frequency entry via MH-36 A6J DTMF microphone.
- Versatile scanning features.
- Programmable functions for front panel and mike keys.
- Menu for feature customization.
- TX time-out timer and auto power-off battery saver.
- Priority channel monitor.
- DCS code number search.
- ADMS PC programmable.

HRO
Discount Price
$419.95

FT-8100R

Remote Head Capable

$699.00 – Suggested List Price

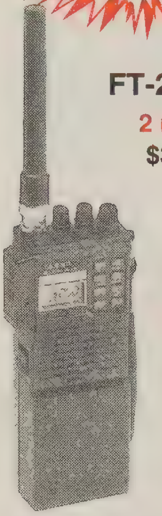
This high-performance receiver has excellent sensitivity with high immunity from overload and remote head capability. The transmitter has individually optimized power amplifier sections, efficiently cooled by an aluminum diecast chassis.

- Cross-band repeat, dual receive.
- Super-wide receiver coverage accesses 110 to 550 MHz and 750 to 1300 MHz (cellular blocked).
- Ready for 1200 or 9600 baud packet.
- (ABMS) Alternating-band memory scan alternates quickly between VHF / UHF memory banks.
- DTMF autodialer.
- 110 memories (55 each band) store standard repeater shifts, CTCSS data, independent transmit and receive frequencies, packet baud rate and transmit power level.
- Selectable output power from 50 watts on VHF to 35 watts on UHF. Choose 10 or 5 watts on each band.

YAESU HANDHELDS

Single Band HTs

HRO
Discount Prices
23R-HP–$179.95
33R–$269.95



FT-23RMKII
2 meters
$309.95

FT-33R
220 MHz
$369.95

Suggested
List Prices

Yaesu's original compact handhelds are still available. They offer the budget-minded amateur an attractive handheld. Both models have LCD display with S meter.

- Up to five watts output with optional FNB-12S.
- Multiple scanning options.
- 10 memories with 7 storing odd splits.
- Aluminum alloy case with water resistant seals.
- Optional: CTCSS encode/ decode (FTS-12) and DTMF pad (FTT-4).
- Auto battery saver.

HRO
Discount Prices
VX-110–$169.95
VX-150–$159.95

NEW!

VX-110
8 Keys
$215.00

VX-150
16 Keys
$239.00

Suggested List
Prices

The VX-110/VX-150 ultra compact VHF FM handheld transceivers are the latest in single band handhelds from Yaesu. They are packaged under the Vertex label.

- Frequency: TX: 144-148 MHz, RX: 140-174 MHz.
- 5 watts with three selectable power levels Hi/ Med/ Low.
- Direct keypad entry.
- 209 memory channels.
- CTCSS (encode/decode).
- DCS (encode/decode).
- 7 character alphanumeric display.
- Optional ADMS-1F Windows PC Programmable.
- SmartSearch™ Auto Memory Loading.
- Automatic number identification.
- ARTS system.
- Tone search scanning.
- Mil-spec 810D/E.
- Backlit keypad.

Dual Band HTs

HRO
Discount Price
50RDHP–$249.95

FT-50RDHP
2 m / 70 cm
$439.00
Suggested List Price

With DTMF keypad
CTCSS Encode/Decode
DVRS, Paging
Coded Squelch

Here's wide band receive coverage up to 999 MHz (cellular frequencies blocked) with AM, FM-N and FM-W filters. CTCSS and Digital Coded Squelch are included. The HT can be keyboard or PC programmed with the optional ADMS-1D programming system (see page 25).

Features include 112 memory channels each with offset, CTCSS / DCS and power level; up to 5 watts output; automatic tone search; digital DC voltage display and auto range transpond system to poll other stations to see if they are in simplex range.

VX-1R
2 m / 70 cm
$149.95
HRO Discount Price

The world has never seen a dual-band amateur hand-held with ultra-wide frequency coverage in such a small package. At 3.2" x 1.9" x 1" it is just over 4 ounces. Output power is 500 mW with the standard battery and up to 1 watt with the optional EDC-15 power cable.

- Covers 76 to 999 MHz (cellular blocked).
- 291 memories with 6 digit alphanumeric display.
- Built-in CTCSS & DCS encoder/ decoder.
- Dual watch to check sub-band activity.
- The Auto Range Transponder System (ARTS) provides one-touch "on-range" confirmation.
- One touch emergency button can be used for quick access to home channel.
- Quick setup of TV and FM with auto memory feature to scan and load channels.
- Automatic repeater shift, cloning one VX-1R to another, ADMS-1D for PC programming.

Yaesu Handhelds

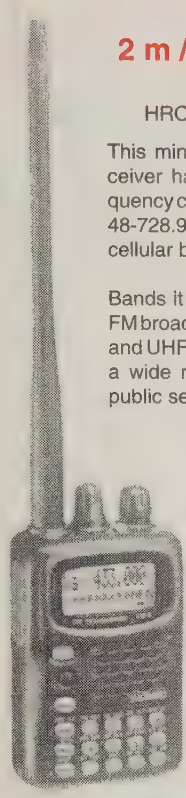
Model	Frequency	Mode	Pwr Supply	Power Out	Current Transmit	Drain Receive	Sensitivity	Height in (cm)	Width in (cm)	Depth in (cm)	Weight oz (g)	HRO Discount Price
FT-23R	144-148 MHz	FM	7.2 VDC	5 W*	900 mA	19 mA	.25 mV / 12dB	4.8 (12.2)	2.3 (5.5)	1.3 (3.2)	15(430)	$179.95
FT-33R	220-225 MHz	FM	12 VDC	5 W	1.3 A	19 mA	.25 mV / 12dB	4.8 (12.2)	2.3 (5.5)	1.3 (3.2)	15(430)	$269.95
FT-50RD-HP	2m/70 cm	FM	6.0 VDC	5 W		200 mA	.16 mV / 12dB	3.9 (9.9)	2.3 (5.8)	1.2 (3.0)	11.5 (325)	$249.95
VX-1R	.5- 999 MHz@	FM	3.6 VDC	0.5W	500 mA	150 mA	.16 mV / 12dB	3.2 (8.1)	1.9 (4.7)	1 (2.5)	4(125)	$149.95
VX-5R	50/144/440MHz	FM/AM	7.2 VDC	5 W **	1.6/1.7/1.4 A	150mA	.16 mV / 12dB	3.4 (8.7)	2.3 (5.8)	1.1 (2.8)	8.9(255)	$329.95
VXF-10	14 FRS Chan.	FM	3.6 VDC	0.5W				4.2 (10.6)	2.2 (5.4)	1 (2.5)	4(125)	$79.95
VX-110	144-148 MHz#	FM	7.2 VDC	5 W	1.3 A	130mA	.16 mV / 12dB	4.2 (10.8)	2.3 (5.8)	1.1 (2.65)	11.5 (325)	$169.95
VX-150	144-148 MHz#	FM	7.2 VDC	5 W	1.3 A	130mA	.16 mV / 12dB	4.2 (10.8)	2.3 (5.8)	1.1 (2.65)	11.5 (325)	$159.95

*Power output can be increased depending on the battery pack selected #Extended Rx range @Cell Phone Blocked **2 and 6m 4.5 W UHF

FAMILY RADIO

RECEIVERS

Tri-Band HT



VX-5R

2 m / 70 cm / 6m

$329.95

HRO Discount Price

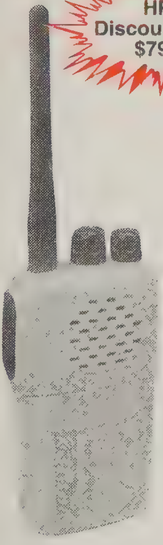
This miniature tri-band FM transceiver has extensive receive frequency coverage: (0.5-15995 Mhz, 48-728.990 Mhz, 800-998.990 MHz cellular blocked).

Bands it receives include AM and FM broadcast, HF short-wave, VHF and UHF TV, VHF AM aircraft, and a wide range of commercial and public service frequencies.

Provides 5 W out on 50-54 MHz and 144-148 MHz and 4.5 W on 430-450 MHz.

CTCSS and DCS built-in, dot matrix LCD, optional barometric sensor unit, dual watch, Spectra-Scope™ graphical display, 220 memories, 16 digit 9 memory DTMF autodialer, ADMS Windows™ PC programmable.

Family Radio



HRO
Discount Price
$79.95

VXF-10

$159.00

Suggested
List Price

The VXF-10 Adventurer™ portable radio provides 500 mW of quiet, reliable two-way communications within a 2 mile range. It is thin and light weight to easily fit in your pocket. Includes all 14 FRS UHF channels and no FCC operating license is required.

The VXF-10 includes a one-touch Weather Channel key, Call Alert and Emergency Calling feature. Get up to 30 hours of operation with 3 AA batteries or continuous operation with the optional EDC-15 car adapter. Includes Digital Coded Squelch (DCS) and the exclusive ARTS (Auto Range Transpond System) to alert you when a similarly programmed VXF-1 is out of range.

SWL Receivers

VR-500

$299.95

HRO Discount Price

This high performance miniature communications receiver provides general coverage reception from 100 kHz to 1300 MHz on CW, SSB (LSB and USB), AM and FM (wide and narrow).

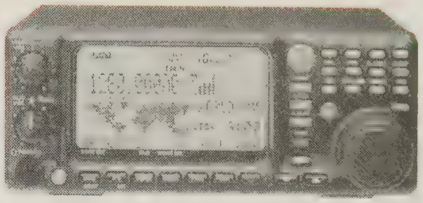
- Receives 0.1 to 1300 MHz (cellular blocked).
- Dual watch.
- Band scope.
- 8 character alpha numeric display.
- 1000 memory channels, skip memory 100 channels, 10 channel search band, 10 channel dual receive, one priority channel.

NEW!

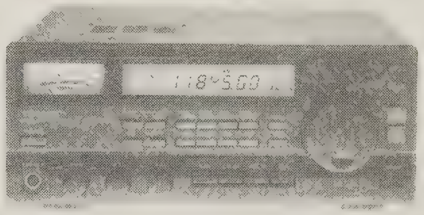
VR-5000

$929.95

HRO Discount Price



This multimode desktop scanning receiver has continuous frequency coverage from 100 kHz to 2.6 GHz (cellular frequencies are blocked and non-restorable). Features direct keypad entry and a wide variety of scanning capabilities. The 2000 memory channels may be separated into as many as 100 memory banks. Memory banks and memory channels may have alphanumeric labels. Sort channels by frequency, alphanumeric name or operating mode. Special pre-loaded bank of most popular shortwave broadcast stations. List may be user edited. Built-in world clock. Dual receive, band scope graphical activity monitor, field strength meter, audio waveform meter, "Smart Search™" memory loading feature. Optional DSP-1 digital signal processor, DVS-4 digital voice recording unit and FVS-1 voice synthesizer.



FRG-100B

$579.95

HRO Discount Price

Receive CW, SSB, AM, and FM, 50 kHz to 30 MHz general coverage receiver. Features are push-button selectable from the front panel. A back-lit LCD shows frequency (down to 10 Hz) and operating status. 50 fully-tunable memory channels store frequency, mode and filter selection. Selectable steps of 10 Hz, 100 Hz, 1 kHz standard–other increments are user programmable. Multi-function scanning (memory, band, selectable group, priority) with carrier or time-delay resume. Has adjustable BFO, reverse BFO offset, and selectable CW sideband. Optional 250 or 500 Hz crystal filters. Includes adjustable SSB carrier offset, selectable AGC rate, noise blanker, all-mode squelch and RF attenuation controls. Programmable on/off timer / sleep timer.

Yaesu Handheld Batteries and Chargers

Battery	Voltage VDC	Rating mAh	Wall Charger	Desk Charger	Radio Series	HRO Price Battery Only
FNB-2	10.8	425	NC-9B		FT-208/708	$49.95
FNB-4A	12	500	NC-18	NC-50	FT-727/109/209/709	$64.95
FNB-12S	12	600	NC-18	NC-50	FT-23/33/73/411/470	$71.95
FNB-14	7.2	1000	NC-34	NC-50	FT-23/33/73/411/470	$59.95
FNB-17	7.2	600	NC-28	NC-50	FT-23/33/73/411/470	$52.95
FNB-27	12	600	NC-18B	NC-50	FT-26/76/415/416/ 530/815/816	$62.95
FNB-31	4.8	600		NC-50	FT-11/41/51	$9 95
FNB-33	4.8	1000		NC-50	FT-11/41/51	$62.95
FNB-38	9.6	600		NC-50	FT-11/41/51	$75.95
FNB-41	9.6	600	NC-60	NC-50	FT-10R/40R	$58.95
FNB-42	9.6	1100	NC-60	NC-50	FT-10R/40R	$62.95
FNB-53	3.6	700	NC-66		VXF-1R	$19.95
FNB-52LI	3.6		NC-66		VX-1R	$36.95
FNB-58LI	7.2	1100	NC-72B		VX-5R	$69.95
FNB-64	7.2	700	NC-73B		VX-110/150	$43.00

YAESU HANDHELD ACCESSORIES

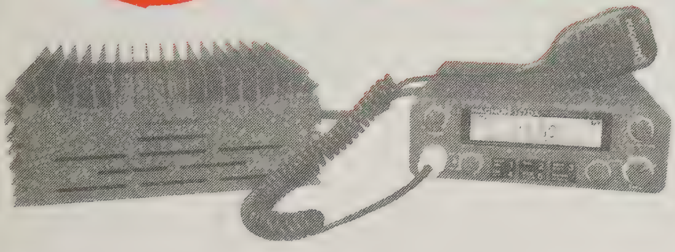
Accessory	Model	10R 40R 50 R	11 41	51R	23R 33R 73R	26 76	209RH	103R 203R 703R	411 811 911	415 815	416 816	470	530	VX-1R	VX-5R	VXF-1 VXF-10 VX-150	HRO Discount Price
Headset/Boom Mike	YH-2				*	*	*	*	*	*	*	*	*				$30.95
Mike "Y" Adapter	CT-30	*															$10.95
VOX Headset	VC-22		*														$62.95
VOX Headset	VC-25													*	*	*	$62.95
Speaker/Mike	MH-32		*		*	*	*	*	*	*	*	*	*				$30.95
Speaker/Mike	MH-34B4B	*															$30.95
Speaker/Mike	MH-34A4B													*		*	$30.95
Speaker/Mike w/Display	MH-29			*									*				$49.95
Speaker/Mike	MH-30C2B		*		*				*						*		$45.95
Speaker/Mike w/Earphone Jack	MH-35A2B		*														$35.95
Ear Piece Mike	MH-37A4B														*		$30.00
Ear Piece Mike	MH37B2B	*	*	*	*	*	*	*	*	*	*	*	*	*		*	$30.95
Ear Phone	FEP-10	*												*			$9.95
Tone squelch	FTS-12				*												$55.95
Tone Squelch	FTS-17A					*			std	std	std	std	std				$47.95
CTCSS Decode	FTS-26											*					$44.95
DC/DC adapter	PA-6				*				*			*					$30.95
DC/DC adapter	EDC-5B	*				*				*	*		*		*		$26.95
DC/DC adapter	EDC-6	*													*		$7.95
DC Adpt w/Trickle Charger	EDC-12		*														$38.95
DC/DC adapter	EDC-15													*		*	$38.95
Wall Charger 117 VAC	NC-9B						*	*									$15.95
Wall Charger 117 VAC	NC-28B				*	*			std	std	std	std	std				$14.95
Wall Charger 110 VAC	NC-34B					*											$14.95
Wall Charger 117 VAC	NC-60B	*															$16.95
Wall Charger 117 VAC	NC-66B													*		*	$18.95
Wall Charger 117 VAC	NC-72B														*		$18.00
Wall Charger 220 VAC	NC-18C				*		*	*	*	*	*	*	*				$15.95
Wall Charger 220 VAC	NC-28C				*	*			*	*	*	*					$26.95
Wall Charger 220 VAC	NC-34C				*	*			*	*	*	*	*				$14.95
Rapid Charger	CD-15														*		$29.00
Quick charger	NC-50	*	*	*	*	*			*	*	*	*	*				$92.95
Desk Top Rapid Charger	VAC-400B															VX150/110	$56.95
Battery 600 mAh 12V	FNB-12S				*				*			*					$71.95
Battery 1000 mAh 7.2V	FNB-14				*				*			*					$59.95
Battery 600 mAh 7.2 V	FNB-17				std				std			std					$52.95
Battery 600 mAh 12 V	FNB-27					*				*	*		*				$62.95
Battery 600 mAh 4.8 V	FNB-31		*	*													$9.95
Battery 1000 mAh 4.8 V	FNB-33		*	*													$62.95
Battery 600 mAh 9.6 V	FNB-38		*	*													$75.95
Battery 600 mAh 9.6 V	FNB-41	*															$58.95
Battery 1100 mAh 9.6 V	FNB-42	*															$62.95
Battery 600 mAh 6.0 V	FNB-49	*															$19.95
Battery 1100 mAh 7.2 V	FNB-V47	*															$55.95
Battery 700 mAh 3.6 V	FNB-52LI													*			$36.95
Battery	FNB-58LI														*		$69.00
Battery	FNB-53															*	$19.95
Battery case	FBA-12					*				*	*		*				$19.95
Battery case	FBA-14		*	*													$19.95
Battery case	FBA-15	*															$19.95
Battery case AA batteries	FBA-17				*				*			*					$25.95
Battery case AA batteries	FBA-20													*			$22.95
Battery case AA batteries	FBA-23														*		$25.00
Battery Cable Extender	PA-17	*															$49.95
Cloning Cable	CT-27	*															$10.95
Cloning Cable	CT-35		*														$9.95
Mike Adapter	CT-44													*			$12.95
Ant Adapt BNC - Rev SMA	CN-2	*													*		$8.95
Ant Adapt SMA - BNC	CN-3	*												*			$8.95
Belt Clip	Clip 10	*													*		$7.95
Radio case	CSC-V10	*															$35.95
Radio Case FNB-26/27	CSC-52									*	*						$19.95
Radio case FNB-41/FBA-15	CSC-68	*															$16.95
Radio case FNB-40	CSC-69	*															$16.95
Radio Case	CSC-73	*													*		$19.95
Leather Case	LCC-150/TT															VX150/110	$23.95
Leather Case w Swivel	LCC-150S/TT															VX150/110	$31.95
Barometric Sensor Pressure Unit	SU-1														*		$35.00

Specials are Listed on the Secure HRO Web Page: http://www.hamradio.com

HF / 6m TRANSCEIVERS

10 Meter Transceivers

RF limited



Magnum 357DX

$399.95 – HRO Price

The Magnum 357DX is a microprocessor controlled, compact, 10m mobile transceiver with a separate control deck and high power RF deck. The control and RF decks are connected by a 9 foot control cable.

- Full 10m band coverage (28.0 – 29.699 MHz).
- AM / FM / USB / LSB.
- RF output power : 100 W (FM), 150 – 200 W peak (AM / SSB), 50 W average (AM).
- Continuously variable RF power output.
- Large backlit LCD.
- 5 memory channels.
- Selectable frequency resolution (100 kHz, 10 kHz, or 1 kHz).
- Receive sensitivity: SSB / AM 0.25 uV, FM 0.3 uV.
- Repeater offset with programmable offsets.
- Noise blanker, last frequency recall, frequency scan, scanning microphone.
- 12–13.8 volt DC @35 amps max.

Magnum 257DX

$199.95 – HRO Price

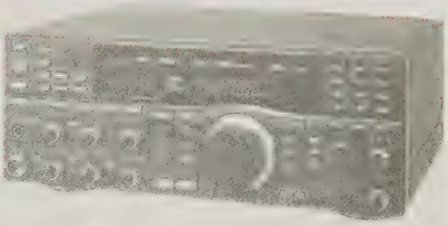
MAGNUM 257
29.699

The Magnum 257 is a microprocessor-controlled, compact 10m mobile transceiver with 30 watts of output power.

- Full 10m band coverage (28.0 – 29.699 MHz).
- FM / USB / LSB / AM.
- RF Output Power: 30 W (FM), 30 W PEP (AM / SSB), 8 W average (AM).
- Continuously variable RF power output.
- Large backlit LCD.
- 5 memory channels.
- Selectable frequency resolution (100 kHz, 10 kHz, or 1 kHz).
- Receive sensitivity: SSB / AM 0.25 uV, FM 0.3 uV.
- Repeater offset with programmable offsets.
- Noise blanker, last frequency recall, frequency scan, scanning microphone.
- 12–13.8 volt DC @ 6 amps max.

HF + 6 Meters

JRC



JST-245

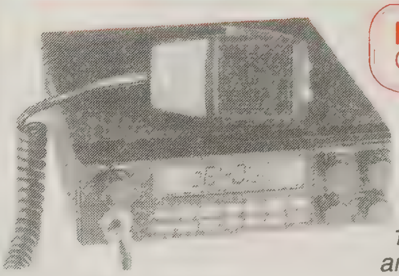
$2399.95

HRO Price

The JST-245 HF transceiver covers the amateur HF bands plus 6 meters. It is compact and includes a switching AC power supply and an automatic antenna tuner. It features variable tuning, multiple antenna selection, dual IF filters, variable bandwidth control and notch tracking. There is a full coverage receiver for 100kHz to 54 MHz. Modes include SSB, CW, AM, FM and AFSK. Output is 15 to 150 watts continuously variable. CW operations are full break-in and an electronic keyer is included. There are 200 memory channels to store frequency, split, mode, filter, AGC, antenna, shift, tone. All mode squelch, VOX and RF speech processor included.

10m Mobiles

RANGER Communications, Inc.



RCI-2950DX

$279.95

HRO Discount Price

Choose from two Ranger 10 meter / 12 meter amateur transceivers: the 25-watt RCI-2950DX or the 100-watt RCI-2970DX.

Ranger's RCI-2950DX is built for reliability and provides a wealth of features. It has full 10 m band coverage and all-mode communications. Ten most used frequencies can be pre-programmed for easy access.

- Full band coverage 28.0 - 29.6999 MHz plus 12 meters.
- All mode U/ LSB, CW, AM, FM.
- Large backlit LCD display with four-step brightness control.
- Tuning steps 100 Hz; 1, 10, & 100 kHz; 1 MHz.
- Optional CTCSS encoder/ decoder.
- Repeater offset switch with standard offsets.
- Built-in dual VFO.
- RIT for fine tuning up to ±3 kHz.
- Noise blanker.
- Selectable programmable tone.
- Transmitter output 25 W for SSB; 12 W CW; 8 W AM / FM.
- RF gain control and RF power selector.
- Receive sensitivity AM 0.5 µV, SSB .15 µV, FM .25 µV.

RCI-2970DX

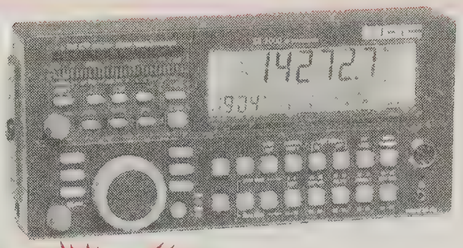
$419.95

HRO Discount Price

This 10/12m meter HF transceiver has similar performance and features to the RCI-2950 except it provides **100** watts PEP output.

Convenient, Secure On-line Ordering – 24 Hours a Day –
Check the Manufacturers' Coupons at http://www.hamradio.com

SGC



HRO
Discount Price
$1899.95

SG-2000
PowerTalk ADSP

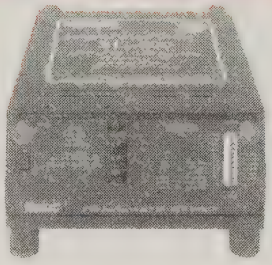
$2195.95
Suggested List Price

The PowerTalk™ SG-2000 packs advanced ADSP and SNS technology into a slim, state-of-the-art, control head. PowerTalk™ greatly increases signal clarity and drastically reduces noise. With SGC's precision tuning features, bright red and green LED's provides precise visual tuning of high, low, and center frequencies. Preset and user-programmable memories allow quick recall of ADSP, SNS, and high, low, center, and notch filter settings for easy operation. A high performance spinner knob gives you hands-on tuning. It 644 ITU and ham frequencies including SITOR / AMTOR / PAKTOR telex channels permanently etched into memory, plus 100 user-programmable frequencies and easy Weatherfax connections. It has 150 watts of power, an extra-large, extra-bright LCD display, and the latest surface mount technology. PowerTalk™ is a no compromise HF-SSB power tool. **Note: This radio must be special ordered.**

HF Amplifier

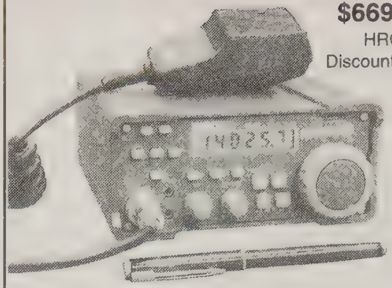
SG-500

$1199.95
HRO Discount Price



The Smart Power Cube produces tremendous power–nearly as much as a 1 KW amplifier–yet it requires less than one cubic foot of space. Electronic brain power makes it possible. The SG-500 is an intelligent, microprocessor controlled, high-powered linear amplifier, designed with high efficiency transistors. It constantly monitors your HF-SSB's activities, power needs, and antenna condition, and automatically–in less than 15 milliseconds–selects the right broadband filter. It can reliably produce, essentially unattended, in the most demanding conditions. Power supply required. SGC PS50 recommended to guarantee specifications.

- Fully automatic band switching, 12 VDC.
- Input overdrive.
- Over temperature, over current protection.
- Frequency coverage 1.8-24 MHz.
- Power output:
  SSB: 500 watts PEP
  CW:500 W for 10 minutes; 500 W continuous with fan
  AM: 250 watts carrier maximum



SG-2020

$669.95
HRO
Discount Price

The SG-2020 is a compact, low power transceiver with the features and performance of a modern, full-size transceiver. It covers 160 through 10 meters and has a general coverage receiver from 1.8 to 30 MHz. The power output is front panel adjustable from 0 to 20 watts PEP. The rig has RF speech processing, 20 memories, LSB/USB, break-in CW, built-in mode 'B' Iambic keyer adjustable from 5 to 60 WPM and memory scan.

SG-2020
PortaPak Portable System

$1149.95
HRO Discount Price

The SG-2020 PortaPak is a portable package and accessories designed for professional portable applications. The overall size of the system is just 2-7/9 by 16-3/8 inches. It has an adjustable nylon strap for carrying over the shoulder or by hand. It is protected against most climatic conditions but is not waterproof. The stainless steel latches provide secure connection of the battery pack and front panel cover. System includes the SG-2020 transceiver, "D" cell battery container, standard SGC microphone and front panel cover for storing the microphone. Overall weight including standard batteries (not supplied) is 11 pounds.

HRO
Discount Price
$1599.95

Pictured with Optional
Handset Microphone

SG-2000

$1895.95
Suggested List
Price

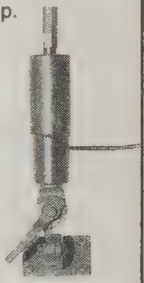
The SG-2000 is a rugged commercial grade all-mode HF transceiver that provides 150 watts PEP output. 100 user defined channels can be set to ham frequencies. The transmit frequency range is 1.8 to 30 MHz; receive range is 500 kHz to 30 MHz. The SG-2000 can be fully controlled by any standard RS-232 protocol connector. This allows easy implementation of all digital modes. The front panel can be removed to act as a remote head for mobile operation For more information on this HF transceiver, contact HRO. **Note: This radio must be special ordered.**

HF Mobile Antennas

SG-307

$265.95
HRO Price

The SG-307 is a durable, lightweight mobile antenna. Its dual element design makes it a high efficiency radiator. The single fiberglass whip, helically wound, has a primary resonance at 8 MHz and a secondary resonance at 25 MHz. It has a frequency range of 1 to 60 MHz and supports up to 150 watts PEP or CW. At frequencies under 25 MHz, the SG-307 will outperform a conventional 9-foot whip.



SG-303
With Ratchet Mount

$479.95
HRO Price

The SG-303 high performance mobile antenna is built to operate in rough terrain and extreme climatic conditions. The light weight, low cost SG-303 operates between 1.8 and 30 MHz with power handling from 3 to 500 watts PEP. Nine feet in length, it consists of two sections of helically wound whip mounted on a sturdy professional weatherproof rubber spring.

It mounts on an adjustable ratchet mechanism. The base adjusts for the best attachment to the vehicle and the antenna ratchet permits orienting the whip from vertical to horizontal. It is a perfect match for the SGC line of antenna couplers. It has a lifetime warranty.

Dipole Antenna

SG-103

$239.95
HRO Price

The SGC broadband dipole provides optimum performance for a frequency range of 2 to 28 MHz and handles 150 watts PEP. The length is 90 feet. It has an impedance of 50 ohms and uses an SO-239 connector.

HF-SSB Automatic Antenna Couplers

HRO Discount Price $499.95

SMARTUNER®

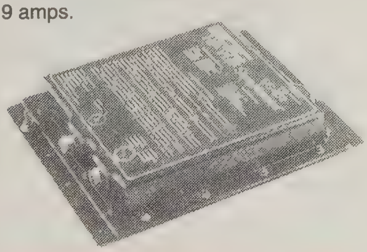
HF-SSB Antenna Coupler SG-230

$595.00

Suggested List Price

SGC's Smartuner HF antenna coupler combines fully-computerized operation with a wide range of antenna matching possibilities. It is a versatile, clever, automatic device with quite surprising capabilities even on random wires. The Smartuner works with any HF rig.

- Tunes itself on an SSB signal. It does not need a constant carrier.
- Matches antennas from 2.5 to 27 meters long. A minimum length of 8 meters (25 feet) is required for 160 meter operation.
- Operates continuously from 1.8 to 30 MHz.
- Memorizes tuning which has already been done. There are 500 memory spots.
- The perfect addition to your marine-mobile installation.
- Tunes unknown antennas in just two seconds.
- Tunes a known antenna in milliseconds.
- Needs no bandswitching information, special low power tune-up or special wiring.
- 10 to 150 watts input power.
- Input impedance range is 45 to 55 ohms.
- DC operating voltage range is 10 to 15 VDC .9 amps.



VHF-HF Antenna Coupler

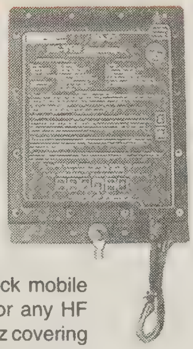
SG-231 – $499.95

HRO Discount Price

The SG-231is a fully automatic coupler for 100 watts for 1.0 to 60 MHz. It uses a microprocessor controlled pi or L network to match most any load to your rig with the SWR always 1:1.5 or better. Tuning solutions are stored in non-volatile memory for fast automatic recall. Operates from 3 to 100 watts and required 12VDC.

PORTA Smartuner®

Worlds Smallest High-Performance Antenna Coupler



NEW!

SG-237

$329.95

HRO Discount Price

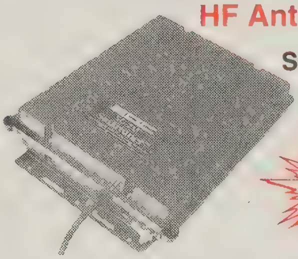
The SG-237 is designed for quick mobile set-up or base operation. It is for any HF SSB operation from 1.8 to 60 MHz covering 6 meters. It is stable enough to be self supporting on the ground or installed on a balcony. The tuner can be fed with ladder line or end fed antenna.

- Supplied with 9 feet single jacketed control cord and coaxial cable plus a ground system of radial wires each 12 feet long.
- Any 9 foot whip will provide good operation above 3.5 MHz. For operation at 1.8 MHz, at least 28 feet of wire or a 20 x 20 foot loop is recommended.
- Optional whip antenna available.
- 170 location memory capacity
- Operates on 3 to 100 watts PEP and 40 watts maximum on CW.
- Impedance range is 45 to 55 ohms.
- Requires 10.5 to 18 VDC at 300 mA.

HF Antenna Coupler

SG-235 – $1595

Suggested List Price



HRO Discount Price $1399.95

The SG-235 is a fully automatic coupler for 500 watts that will tune an antenna at least 23 feet long for the HF bands. The SG-235 automatically evaluates and switches 64 input and 32 output capacitor combinations plus 256 inductance combinations in a pi network design. The tuner remembers the chosen frequency and tuning values and automatically reselects those values when transmitting on that frequency. Powerful in combination with the SG-500.

DC Coaxial Line Isolator

SG-54-70

$89.95 for Set of Two

HRO Discount Price

These devices allow up to 25 VDC @ 1.5 Amp to be supplied more than 150 feet via the RF transmission line. Instead of running a separate power cable, use the coax to provide DC power to antenna couplers, antenna switches, pre-amplifiers, or other DC powered equipment at the antenna end of the line. Two isolators required per installation. Broadband isolators provide better than 80 Db isolation for 1.5 MHz through 30 MHz, better 40 Db through 250 MHz.

QMS

Quick Mount System

Add a QMS to your HF SSB mobile system – an SGC Smartuner along with an efficient whip antenna – for increased radiation and efficiency. The QMS can be installed on any small or large vehicle (sports car, SUV, or sedan) without drilling any holes or damaging the car body. Installation can be permanent or temporary. It just takes 15 minutes, using industrial strength straps, buckles and 4 suction cups. Mount the QMS on the vehicle side, trunk, roof or other convenient location. Most QMS systems come with a lightweight mobile antenna (either Model SG-303 or SG-307) which provides a wide frequency range and easy tuning of the Smartuner.

The Antennas

The **SG-307** antenna is 7 ft. and the **SG-303** antenna is 9ft. Both are dual resonant whips supplied with mounting hardware. The antennas are two section with an inner core of large stainless steel rod and a layer of fiber composite helically wrapped.

System Configurations

55-47 – QMS-2

QMS Quick Mount System with SG-230 antenna coupler, SG-303 antenna, strapping elements, 4 suction cups, and mounting hardware (150 W; 1.6-30 MHz). **HRO Price $995.95**

55-48 – QMS -3

QMS Quick Mount System with SG-235 antenna coupler, SG-303 antenna, strapping elements, 4 suction cups, and mounting hardware (500 W; 1.8-30 MHz). **HRO Price $2199.95**

55-49 – QMS-7

QMS Quick Mount System with SG-231 antenna coupler, SG-307 antenna, strapping elements, 4 suction cups, and mounting hardware (100 W; 1-60 MHz). **HRO Price $1299.95**

55-50 – QMS-37

QMS Quick Mount System with SG-237 antenna coupler (100 W; 3.5-60 MHz). (Antenna not provided and any stainless steel whip can be used.) *Special Order.* **HRO Price $595.95**

Basic Quick Universal Mount

The basic system case includes strapping elements and 4 suction cups to mount the SGC coupler and antenna on any vehicle. Antenna and coupler are not supplied.

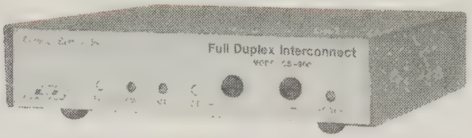
PHONE PATCHES

Telephone Interconnects

CSI

Connect Systems manufactures a wide range of telephone interconnects and commercial equipment. Please contact HRO or visit the CSI Worldwide Web page at http://www.connectsystems.com

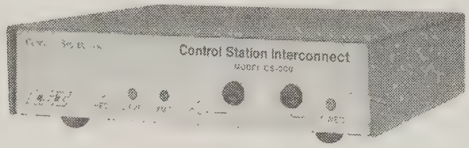
Full Duplex Interconnect and Repeater Maker



CS-800

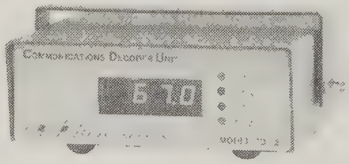
This low cost automatic, full d-uplex patch converts your dual band base and dual band handheld or mobile into a cellular like duplex phone system. A built-in repeater maker can be enabled which makes the CS-800 suitable for private or club repeater/ auto patch use. The CS-800 comes with standard features unavailable in competing brands such as 90 memory speed dialer, redial, hookflash, CW ID, advanced toll restricts, secret toll override access code, built-in programming keypad and digital readout, tone / pulse dial out, and more. The only connections required are to the mike and speaker jacks of your rig. Fully FCC and DOC approved. **HRO Price 349.95**

CS-900 Simplex Interconnect



This low cost automatic simplex patch converts your single band base and handheld or mobile into a powerful phone system. A 1/2 second digital voice delay prevents word clipping caused by transceiver and vox switching speed. It can be used base to mobile or through repeaters to extend range (phone-base-repeater-mobile and back mobile-repeater-base-phone). The CS-900 comes with many standard features unavailable in competing brands such as 90 memory speed dialer, redial, hookflash, CW ID, advanced toll restricts, 10 programmable toll override sequences, secret toll override access code, tone/pulse dialout and more. It can be user programmed using the built-in keypad with digital readout, over the air using DTMF, or from any telephone. The only connections required are to the mike and speaker jacks. Fully FCC and DOC approved. **HRO Price $399.95**

CD-2 Communications Decoder



The CD-2 decodes and displays 51 CTCSS tones and 112 DCS codes originating on the channel you are monitoring. DTMF tones are decoded and displayed as they occur and are replayed a second time slowly so that you can read high speed auto-dialers etc. The gimbol makes the CD-2 easy to mount in a vehicle so you can easily determine which CTCSS tone is nee98he RS-232 port can transport all decoded data to a computer. **HRO Price $199.95**

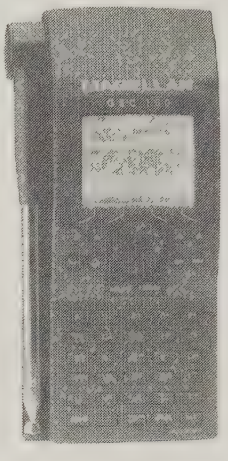
CD-2P Software

The CD-2p DOS-based application stores the time and date of each decoded CTCSS, DCS or DTMF from your CD-2. Accumulated data can be displayed or printed. Graphical displays show channel loading and more. **HRO Price $109.95**

GLOBAL TELEPHONES

MAGELLAN
Satellite Navigation and Communications

Global Satellite Communicator



GSC-100

$1199.95
HRO Discount Price

Stay in touch no matter where on earth you go. Send and receive e-mail from the most remote places. With its integrated GPS, you can navigate with assurance and relay your position to anyone, anywhere.

With an easy-to-use, menu-driven interface, the GSC-100 allows you to send and receive messages through the ORB-COMM network, a wireless, two-way satellite system with global coverage. The GSC-100 communicates with the satellites on a standard narrow-band VHF frequency. Your e-mail is routed through a Gateway Station and on to its final destination via traditional methods.* Create, edit, forward, and store up to 100 text messages. The address book takes up to 150 entries.

The integrated global positioning system helps you identify your position, plot and track your course, or store 200 waypoints. Store five reversible routes of 15 legs. Features six graphic navigation displays.

Rechargeable NiCad battery pack included as well as an AC adapter for 10-35 VDC. Includes ORBCOMM telescoping and GPS internal patch antennas.

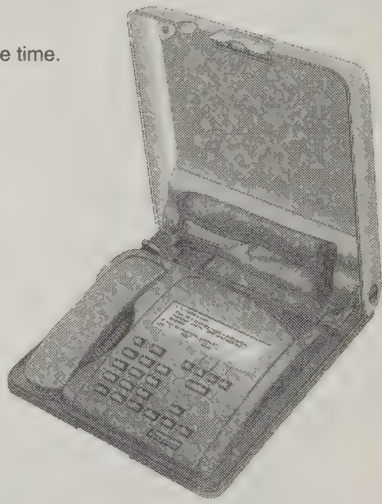
*Additional cost for satellite time. Call for more information.

World Phone

Satellite Telephone

$2899.95

Marine Version
$6499.95
HRO Prices



Magellan now offers two satellite telephone products based upon the revolutionary mini-M service from Inmar-sat. Advanced Mini-M technology allows the size, weight, and cost of the phones to be significantly reduced. The phones provide global voice, fax, and data communications with airtime charges of just $2.99 per minute.

The mini-M phone includes the phone, internal battery, waterproof remotable antenna, and AC converter/charger. The phone is fully capable of voice, fax, and data communications without any additional costs or upgrades.

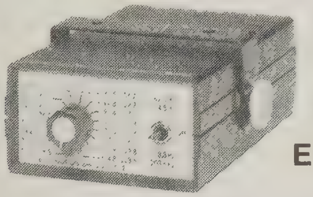
The Marine Version is a compact unit that mounts easily in a boat's cabin and includes the topside-mounted auto-tracking antenna.

ENCODERS

Encoders / Decoders

COMMUNICATIONS SPECIALISTS, INC.

Tone encoders and decoders are just what you need to control your repeater or listen only to signals that are meant just for you.



TE-32 CTCSS Encoder

The TE-32 multi-tone CTCSS encoder is perfect for mobile operations or the test bench. It is powered by an 6 to 28 vdc unregulated source. It has a three position range switch and a frequency accuracy ±0.1 Hz maximum over the temperature operating range. The TE-32 is low impedance (1K), low distortion, with adjustable sine wave output, 5 V peak to peak. **HRO Price $49.95**

	Encode	Decode	Comments	HRO Price
TS-64DS	*	*	Universal design, CTCSS encoder / decoder capability for all FM transceivers	$57.95
SS-64	*		DIP switch programmable CTCSS encoder for all FM transceivers	$28.95
TE-32	*		Multi-purpose CTCSS / Burst Tone encoder	$49.95

24 Hour FAX Order Numbers

Anaheim	714-533-9485
Atlanta	770-263-9548
Denver	303-745-7394
New Castle	302-322-8808
Oakland	510-534-0729
Phoenix	602-395-1244
Portland	503-684-0469
Salem	603-898-1041
San Diego	858-560-1705
Sunnyvale	408-736-9499
Burbank	818-842-5283
Woodbridge	703-494-3679

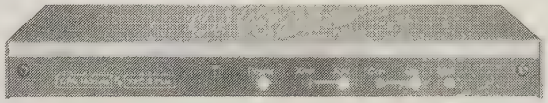
PACKET & HF MODEMS

Kantronics

Remember "THE INTERFACE," the UTU, KPC-1, KPC-2 and the KAM? They were all Kantronics innovations.

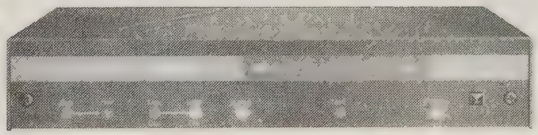
The CW and RTTY programs written for the VIC-20, C-64, TI-99 and other computers were embedded inside our UTU using a custom microcomputer. This made it possible for any computer with a serial communications program to run CW or RTTY. Since that time, we've provided Pactor (1993) and G-TOR (1994) with our HF modems. We also pioneered personal packet mailboxes, amateur paging (1996) and incorporated advanced digipeating for APRS (1998) in our packet modems.

Here's the latest Kantronics lineup – the KPC-3 plus, the KPC-9612 Plus, the KAM '98 and the GPS Tracker – all descendants of those legendary products. These units feature the HC11 Motorola processor, more EPROM memory space, more RAM, digital drive control and A/D inputs!



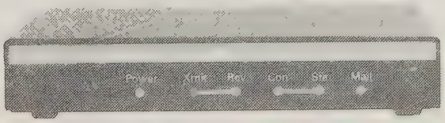
GPS Tracker with Packet Modem

The tracker combines a Garmin X12 GPS module, active antenna and a KPC-3 Plus in a single package. For simultaneous tracking and two-way packet ops, just connect the transceiver to one end and a laptop computer to the other. **HRO Price $349.95**



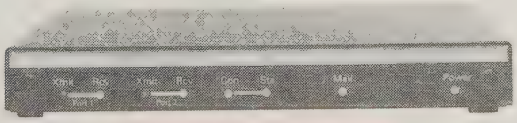
KAM '98 – HF and VHF TNC

This great-grandson of the UTU features numerous outstanding modes and functions including CW, RTTY, AMTOR, Pactor, and G-TOR for HF digital operations. It also provides programmable MARK and SPACE tones, bargraph tuning for HF ops, packet operation at both 300 and 1200 baud and a mailbox similar to the KPC-3 Plus. It's a great fit with the new 160 meter to 2 meter rigs and it supports GPS operations. **HRO Price $399.95**



KPC-3 Plus – VHF / UHF TNC

This compact, low current TNC has become the work horse of packet radio today. It features multiple packet connects, digipeating for APRS operations, WEFAX reception, a GPS mode for tracking, personal packet mailbox and more. **HRO Price $159.95**



KPC-9612 Plus/128 Dual-Speed, Dual-Port TNC

The TNC is the rapid delivery model, supporting 9600 baud and featuring both 1200 and 9600 packet ports, advanced APRS digipeating (APRS is a trademark of Bob Bruninga), optional (K-Net) networking, amateur beeper (paging) and more. **HRO Price $349.95**

Keeping Up to Date . . .

The KAM '98 and KPC-3 Plus are now available with version 8.3 firmware, providing a second serial port for GPS and APRS capabilities, plus additional GPS improvements.

The KPC-9612 Plus is currently sold at Version 8.2, with advanced digipeating for GPS, plus the ability to download EMWIN weather broadcasts.

All models work great with Pacterm '98, our established software for Windows 95/98/NT users.

KPC-9612 add-on Board

Add a third port to your KPC-9612 Plus! 1200 or 9600 board available. See the Kantronics website for technical details.

HRO Prices:

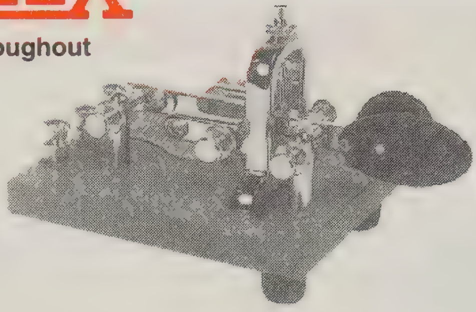
1200 board	**$99.95**
9600 Board	**$125.95**

Visit the Kantronics web page:
http://www.kantronics.com

VIBROPLEX®

Quality and Pride Throughout

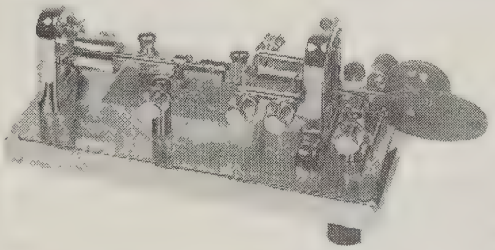
"Vibrokeyer"



The Vibrokeyer is designed for those who prefer a non-iambic paddle. The single lever paddle imitates the automatic dots and dashes of the electronic keyer with the same motion used to operate the "Bug".

Vibrokeyer Gold: The entire base is 24K gold plated with bright decorative chrome top parts. Smooth, jeweled movements for precision control. Stainless steel hardware where appropriate. **HRO Price $269.95**
Vibrokeyer Deluxe: Highly polished decorative chrome base with bright chrome top parts. Silky smooth movements are jeweled as in fine Swiss watches. **HRO Price $159.95**
Vibrokeyer Standard: A neat, crisp black textured finish base with bright decorative chrome parts. Non-jeweled movement. **HRO Price $119.95**

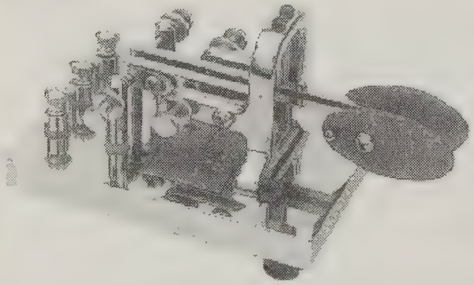
"Original"



The *Original Vibroplex*, is a genuine piece of history. First patented in 1894, the Original is still manufactured today using tools and dies very similar to those used by its inventor, Horace G. Martin. Modern-day operators can put their fist to the same equipment as the Western Union and railroad operators of old.

Original Gold: The entire base is 24K gold plated, with bright decorative chrome top parts. Smooth, jeweled movements for precise control. Stainless steel hardware where appropriate. **HRO Price $299.95**
Original Presentation: 24K gold plated brass plate on a highly polished decorative chrome base with bright chrome top parts. **HRO Price $249.95**
Original Deluxe: Same as the Presentation but without the 24K gold plated brass plate. **HRO Price $179.95**
Original Standard: A neat, crisp black textured finish base with bright decorative chrome top parts. **HRO Price $139.95**

"Iambic"



This is the modern descendent of the Original. It incorporates the traditional Vibroplex look for use with modern electronic keyers.

Iambic Gold: The entire base is 24K gold plated with decorative chrome top parts. Smooth, jeweled movements for premium control. Stainless steel hardware where appropriate.
HRO Price $269.95
Iambic Presentation: 24K gold plated brass plate on a highly polished decorative chrome base with bright chrome top parts. Its silky smooth jeweled movements are like those found in fine Swiss watches. **HRO Price $239.95**
Iambic Deluxe: Same as Presentation but without the 24K gold plated brass plate. **HRO Price $159.95**
Iambic Standard: A neat, crisp black textured finish base with bright decorative chrome top parts. **HRO Price $119.95**

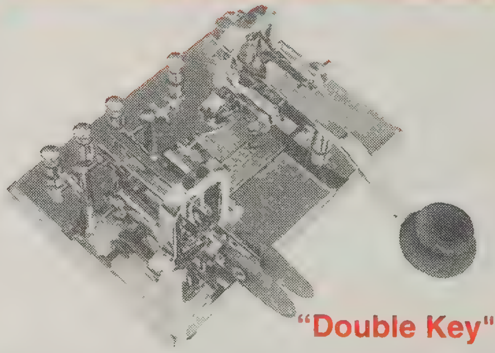
"Brass Racer"

The Brass Racer keys are unique in that there are NO springs in the design. They are crafted from solid brass and mounted on a base of polished hardwood. Tension on the paddle is infinitely adjustable by the use of magnets.

Brass Racer Iambic: This iambic paddle is designed for use with an external keyer or the keyer in your radio. The Triangle Brass base is mounted on polished hardwood. **HRO Price $89.95**

Square Brass Racer: This key is a departure from our traditional style. A distinctive design of brushed lacquered SQUARE brass mounted on polished hardwood. **HRO Price $124.95**

Combination

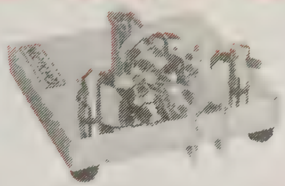


"Double Key"

By popular request, Vibroplex has combined its Straight Key with the classic Vibrokeyer or Iambic paddle on one massive steel base. The Double Key allows the operator to instantly switch from an electronic keyer to the personal touch of a straight key.

Gold Double Key: The entire base is 24K gold plated with bright decorative chrome top parts. Stainless steel hardware where required. **HRO Price $379.95**
Double Key Deluxe: Highly polished chrome base with decorative chrome top parts. **HRO Price $339.95**
Double Key Standard: A neat, crisp, black-textured finish base with bright chrome top parts. **HRO Price $279.95**

BENCHER, INC.



BY Series Iambic Paddles

You will enjoy the smooth, precise action of a Bencher paddle with any iambic keyer. These paddles feature a heavy steel base, gold plated silver contact points, non-skid feet, stainless steel adjustable spring, self-adjusting needle bearings, and large acrylic finger paddles.

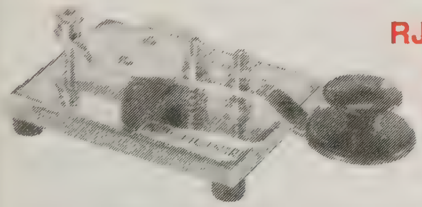
HRO Prices:			
	BY-1	**Black**	**$99.95**
	BY-2	**Chrome**	**$109.95**
	BY-3	**Gold**	**$299.95**
	BY-4	**Gold/Blk**	**$159.95**

NEW!

Mercury Paddle

The return of a legend

The Mercury Paddle has been recreated from the original tooling and specifications. Once only available to a fortunate few, you can now won your own piece of precision instrumentation. This paddle is the ultimate morse keyer for CW masters. The magnetic tension is adjustable from 1 to 27 oz. It has rhodium plated copper contacts, polished acrylic paddle handles, brass base metal, fine chromium finish. **HRO Price $469.95 Special Order Only**



RJ Series Hand Keys

The "RJ" hand keys have an advanced American-style design derived from the telegraph keys that won the west, yet with modern features like Oilite bearings, a solid navy knob, gold-plated solid silver contacts, full locking adjustments of all tension and spacing parameters, and Bencher quality materials throughout. These keys are ideal for the new amateur just mastering code as well as the old time brass pounder anxious to "clear the hook." This key offers the Morse code operator an investment that will bring years of pride and satisfaction.Try the Bencher "RJ" hand key at your nearby HRO. You will be convinced there is no better key available.

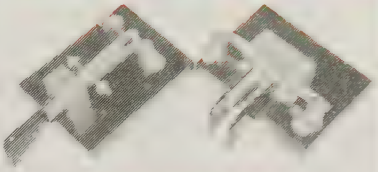
HRO Prices:			
	RJ-1	**Black**	**$89.95**
	RJ-2	**Chrome**	**$99.95**

ST Series Single Lever Paddles

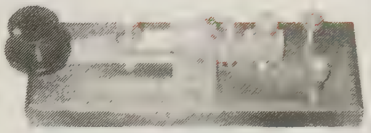
Superb Bencher features and construction for the ham who prefers single lever operation.

HRO Prices:			
	ST-1	**Black**	**$99.95**
	ST-2	**Chrome**	**$109.95**

ALPHA DELTA



Kent Paddles

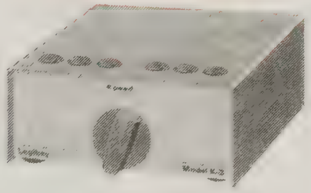


Kent Straight Key

These paddles offer a smooth feel with sealed ball bearings. Precise gap adjustments with knurled heads on fine pitched screws and locking nuts. Made from solid brass within a permanent brass housing.

Twin Paddle	(TP-1)	$149.95
Single Paddle	(SP-1)	$139.95
Straight Key	(SK-1)	$129.95

LOGIKEY



K-3
Iambic Memory Keyer

Features six editable messages with 1530 characters total. Messages can include programmed functions. Auto-insertable contest serial number, speed control range 5-60 WPM, adjustable weighting, adjustable frequency monitor, tune function for X-meter adjustment, automatic character spacing, allows for paddle inserted text and more! **HRO Price $119.95**

For more information, see web site at www.qth.com/Idiom

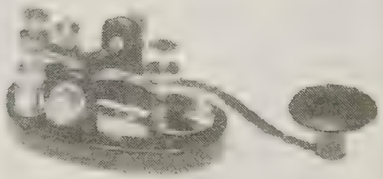
Secure
On-line Ordering
http://www.
hamradio.com

Straight Keys

Nye Viking

Master Key 330-001

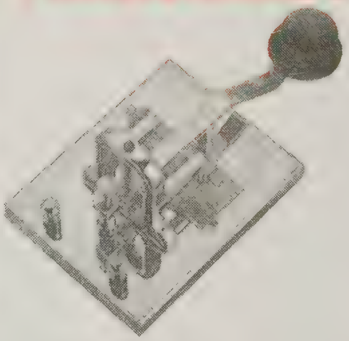
The perfect straight key comes with cord and plug. Isolated contact assembly separates keying circuit from hardware. Includes gold-plated silver contacts, adjustable key arm, Navy knob, and heavy die-cast base. **HRO Price $72.95**



Straight Keys

Keys with gold-plated heavy silver contacts, adjustable key action, and heavy die-cast bases. Brass or nickel-plated hardware, standard or Navy knobs.

VIBROPLEX®



For the first time ever, Vibroplex® is offering a STRAIGHT key. It has unique mechanical action, unlike any other straight key that has ever been manufactured.

Straight Key Gold: The entire base is 24K gold plated with bright decorative chrome top parts. Stainless steel hardware where appropriate. **HRO Price $289.95**

Straight Key Deluxe: Highly polished chrome base with decorative chrome top parts. **HRO Price $169.95**

Straight Key Standard: A neat, crisp black textured finish base with bright chrome top parts. **HRO Price $129.95**

MICROPHONES

ADONIS USA
A DIVISION OF RF LIMITED

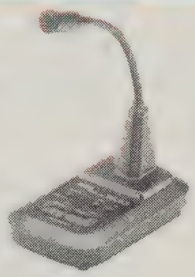
Professional Desktop and Mobile Microphones

Adonis desk microphones feature high sensitivity electret elements, low noise audio amplifiers with variable outputs, FM mode for full range audio and voice clarity, and SSB mode with a more narrow audio range for optimum DX'ing signal strength.

All microphones are beautifully constructed of anodized aluminum cabinets, flexible metal goosenecks, and electronic tactile PTTs that switch your transceivers and amplifiers quietly and smoothly without the harsh mechanical switching of many microphones.

Use Adonis Adapter Cables with all Adonis microphones to quickly connect to almost any transceiver. Have more than one transceiver? Don't buy another microphone! Just get another Adonis Adapter Cable and easily switch your Adonis microphone from radio to radio.

Base Microphones



AM-308

HRO Price $99.95

AM-308 Features

- High sensitivity electret mike element.
- FM / SSB mode switch.
- Output volume control.
- Momentary and locking PTT switches.
- Up and down frequency controls.
- On-air indicator LED.

Specifications
Output voltage: 0 - 30 mV RMS
Output impedance: 500 - 100 K ohms
Power requirement: 3 volt DC (AA batteries)
Current consumption: 1.5 mA (RX) / 2.5 mA (TX)

Optional Accessories
Model PS-3: External DC power supply adapter for battery-free operation.
Model OF-5: Foot pedal switch for hands-free transmitting.
Model KC-5: Variable, two-octave key changer for increased tailoring of TX audio.

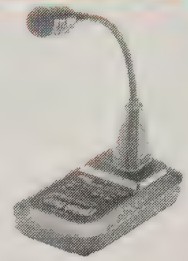
AM-708E

HRO Price $199.95

AM-708E Features

- High sensitivity electret mike element.
- Three stage compressor amplifier with variable manual control.
- Two-transceiver control with output selector switch.
- FM / SSB mode switch.
- Large VU meter.
- Momentary and locking PTT switches.
- Up and down frequency controls.
- On-air indicator LED.
- Battery check circuit.
- TX warning circuit with automatic shut-off.

Specifications
Output voltage: 0 - 30 mV RMS (compressor)
0 - 70 mV RMS (manual)
Matching impedance: 500 - 100 K ohms
Power requirement: 3 volt DC (AA batteries)
Current consumption: 3 mA (RX) 6 mA (TX)
Compressor level: 45 dB (high) 35 dB (low)



AM-508E

HRO Price $119.95

AM-508E Features

- On-air indicator LED.
- FM / SSB mode switch.
- Output volume control.
- High sensitivity electret mike element.
- Two-stage compressor amplifier.
- Momentary and locking PTT switches.
- Up and down frequency controls.

Specifications
Output voltage: 0 - 30 mV RMS
Output impedance: 500 - 100 K ohms
Compressor levels: 45 dB (high) 10 dB (low)
Power requirement: 3 volt DC (AA batteries)
Current consumption: 2 mA (RX) 3 mA (TX)

AM-7500E

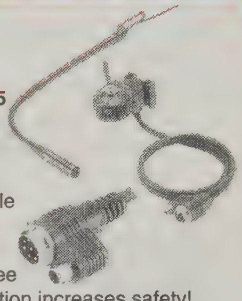
HRO Price $249.95

AM-7500E Features

- High sensitivity electret mike element.
- Large VU meter.
- Three stage compressor amplifier.
- Four-band graphic equalizer – 270 Hz, 540 Hz, 1 kHz, 2 kHz.
- Rotary output volume control.
- Momentary and locking PTT switches.
- Up and down frequency controls.
- On-air indicator LED.
- Battery check circuit.
- TX warning circuit with automatic shut-off.

Specifications
Output voltage: 0 - 30 mV RMS
Matching impedance: 500 - 100 K ohms
Power requirement: 6 volt DC (AA batteries)
Current consumption: 3.5 mA (RX, equalizer off)
4.5 mA (TX, equalizer off)
10 mA (RX, equalizer on)
11 mA (TX, equalizer on)
Compressor level: 45 dB (high)
30 dB (med), 10 dB (low)
S / N Ratio (equalizer): 80 dB
Distortion (equalizer): 0.05 % (at flat)
Graphic Equalizer: +12 dB range

Mobile Microphones



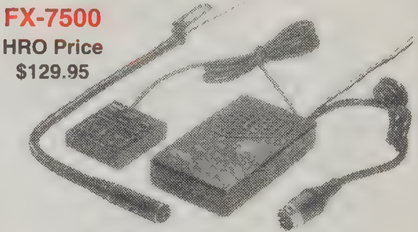
FX-5

HRO Price $109.95

FX-5 Features

- Integrates a mobile radio's controls with a vehicle.
- Virtually hands-free transceiver operation increases safety!
- Uni-directional, electret mike element for improved noise canceling characteristics.
- Flexible boom microphone attaches to vehicle sun visor.
- Flexible boom microphone extends 12 inches.
- PTT control box straps to gear shift or other convenient location.
- Control box with PTT switch, up/down frequency buttons, and mike gain control.

Special versions available, with added features, for Kenwood transceivers! Ask your HRO salesperson about the FX-1K and FX-1KM!



FX-7500

HRO Price $129.95

FX-7500 Features

- Integrates a mobile radio's controls with a vehicle .
- Virtually hands-free transceiver operation increases safety!
- Uni-directional, electret mike element for improved noise canceling characteristics.
- Flexible boom microphone attaches to vehicle sun visor.
- Flexible boom microphone extends 12 inches.
- Low profile, PTT control box attaches to center console.
- Control box features both momentary & locking PTT switches and up/down frequency buttons.
- Microphone gain control on power box.

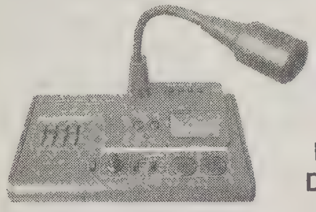
Special versions available, with added features, for Kenwood transceivers! Ask your HRO salesperson about the FX-7500K and FX-7500KM!

MICROPHONES & HEADSETS

PRYME®

Radio Products

Premier Communications has a Pryme product to meet any portable communication need. They offer small speaker microphones (the SPM-100 series) and full sized mikes (the SPM-600s). Users on the go will appreciate ultra comfortable lapel mikes (SPM-200 and 200E) and the patented over-the-ear boom microphones (SPM-400). For high-noise environments, use a noise resistent throat mike (SPM-500). Users that need "low profile" communications should check out the flesh-colored "palm mike" (SPM-700) which can easily be concealed.



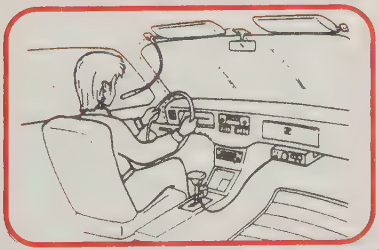
NEW!

PMC-200
Desk Mike

This advanced mike uses a highly sensitive ceramic condenser element and an amp with three compression levels. A graphic equalizer helps you customize your audio. Adjustments are easy with the bult-in analog meter. It has an on-air indicator, frequency up/down controls, and locking and momentary PTT.

PMC-100
Desk Mike

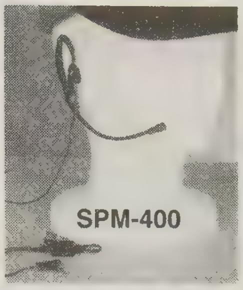
The high performance PMC-100 is compatible with all modern HF and VHF transceivers. Has high quality compressor amp, ceramic condenser mike element, selectable FM or SSB audio shaping selector switch, dual transceiver inputs. Optional cables for specific radios.



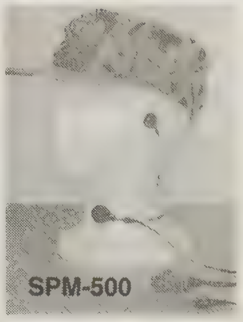
MMC-100
"Sun Visor" Mike

This is a permanently installed mobile mike that makes mobile operations safer. Optional cables for specific radios.

SPM-200E

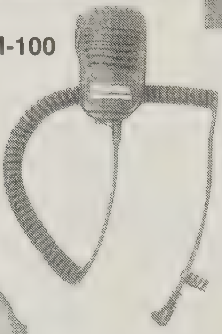


SPM-400



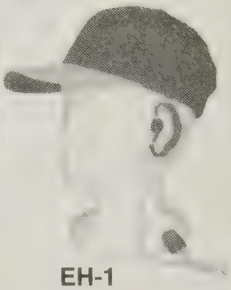
SPM-500

SPM-600



SPM-100

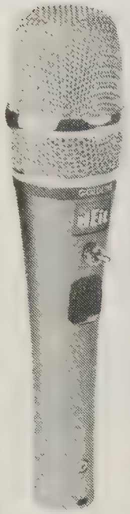
SPM-700
Flesh-Colored
"Palm Mike"



EH-1
Earphone for
most HT's

Model	Description	HRO Price
PMC-100	Base Station Mike (connector cables sold separately)	$79.95
PMC-200	Base Station Mike (connector cables sold separately)	$99.95
MMC-100	Sun Visor Mike (connector cables sold separately)	$79.95
SPM-100	Speaker / mike for ADI, Icom, Standard, Yaesu	$19.95
SPM-101	Speaker / mike for Kenwood	$19.95
SPM-102	Speaker mike for FT-50R / VX-1	$19.95
SPM-103	Speaker mike for Mototola Radius Line	$33.95
SPM-200	Lapel mike and earphone for ADI, Icom, Standard, Yaesu	$13.95
SPM-200E	Lapel mike with ear hook for ADI, Icom, Yaesu, Alinco	$21.95
SPM-201	Lapel mike and earphone for Kenwood	$19.95
SPM-201E	Lapel mike with ear hook for Kenwood	$23.95
SPM-202	Lapel mike with ear bud for FT-50R / VX-1	$20.95
SPM-202E	Lapel mike with ear hook for FT-50R / VX-1	$24.95
SPM-203	Lapel mike with ear bud for Motorola Radius Line	$20.95
SPM-203E	Lapel mike with ear hook for Motorola Radius Line	$29.95
SPM-400	Earpiece/mini boom mike for ADI, Icom, Standard, Yaesu	$25.95
SPM-400PT	Earpiece/mini boom mike w/ PPT cord for ADI, Icom, Standard, Yaesu	$31.95
SPM-401	Earpiece with mini boom mike for Kenwood	$27.95
SPM-401PT	Earpiece with mini boom mike w/ PPT cord for Kenwood	$33.95
SPM-402	Earpiece with mini boom mike w/ PPT cord FT-50R / VX-1	$29.95
SPM-402PT	Earpiece with mini boom mike FT-50R / VX-1	$35.95
SPM-403	Earpiece with mini boom mike w/ PPT cord Motorola Radius Line	$29.95
SPM-403PT	Earpiece with mini boom mike Motorola Radius Line	$32.95
SPM-500	Throat mike and earpiece for ADI, Icom, Standard, Yaesu	$59.95
SPM-501	Throat mike and earpiece for Kenwood	$61.95
SPM-502	Throat mike and earpiece for FT-50R / VX-1	$62.95
SPM-503	Throat mike and earpiece for Motorola Radius Line	$61.95
SPM-600	Large speaker / mike for ADI, Alinco, Icom, Yaesu	$34.95
SPM-601	Large speaker / mike for Kenwood	$29.95
SPM-602	Large speaker / mike for FT-50R /VX-1R	$29.95
SPM-603	Large speaker / mike for Motorola Radius Line	$35.95
SPM-700	Stealth "Palm Mike" for ADI, Icom, Stanadard, Yaesu	$29.50
SPM-701	Stealth "Palm Mike" for Kenwood	$19.95
SPM-702	Stealth "Palm Mike" for FT-50/VX-1R/VX-5R	$29.95
SPM-703	Stealth "Palm Mike" for Motorola Radius Line	$34.95
EH-1	Earphone for most handheld radios	$15.95
EH-1K	Earphone for most Kenwood radios	$14.95
EH-1Y	Earphone for Yaesu FT-50, VX-1, VX-5 and others	$15.95

MIKES / HEADSETS / SPEAKER



Goldline

The Goldline series is a full-range, dual element studio microphone specifically designed for full range, smooth articulate SSB audio with a wide audio response. It is also great for AM and FM transmissions. It features a 60Hz to 16kHz frequency range coupled with a 6dB midrange peak @ 2kHz. The microphone comes with the new full-range element plus your choice of either the HC-4 or HC-5 Key Element. You can switch between the full-range element and the HC element with a selector switch next to the PTT button.

GM-4 GOLDLINE with HC-4 $129.95
GM-5 GOLDLINE with HC-5 $129.95

HM-10 Series

By selecting the correct hardware, you can design the EXACT audio set up you need for your station. With Heil hardware you can clamp it, screw it, bolt it, or hold the **HM-10.** The components are shown below. They are available pre-wired for Kenwood, Yaesu and Icom. Please specify your radio.

Model	Description	HRO Price
HM-10 (4)	Mike with case and HC-4 element	$65.95
HM-10 (5)	Mike with case and HC-5 element	$65.95
HM-10 Dual	Mike with HC-4 & HC-5	$129.95
MA-1	Adjustable boom	$64.95
FS-1	Foot switch	$29.95
TB-1	Table base mount	$24.95

Replacement Mike Elements

HC-4 / HC-5

The **HC-4** is for serious DX and contest operators. With a 10 dB peak at 2,000 Hz and the low rolled off sharply at 500 Hz, this is best for getting through the pile ups. **HRO Price $29.95**

The **HC-5** has higher fidelity and is the recommended element for the Icom SM-5/6. The output level matches that required for the Kenwood and Yaesu HF radios. **HRO Price $29.95**

Pro Headsets

Heil's headsets for the amateur provide comfort and performance. Available for use with Icom, Kenwood and Yaesu. Contact HRO for specifications. Connecting cables optional for Icom, Kenwood and Yaesu.

Pro Set The first in the Pro-Series Boom Headsets, the Pro Set provides superior comfort and quality. **HRO Price $119.95**

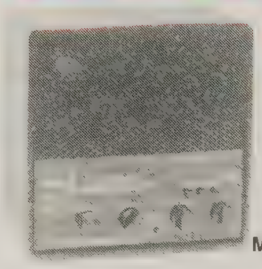
Pro Micro Heil's newest addition to the Pro Series is the Pro Micro. It's virtually a miniature version of the Pro Set. Created for long-term comfort and superior performance, it doesn't cover the entire ear like the Pro Set–a feature requested by some Hams. **HRO Price $99.95**

Pro 5 The Pro 5 is a single side version of the Pro Set. Some have requested a single side Boom Set so they can keep one ear open for room sounds or multiple transceiver monitoring. **HRO Price $109.95**

Microphone Pre-Amp for Icom (HMP)

Improve the response curves and gain for Icom radios with Heil mike elements. (ICOM modular version maybe incompatible for VOX on IC-706MKII) **HRO Price $54.99**

Speaker



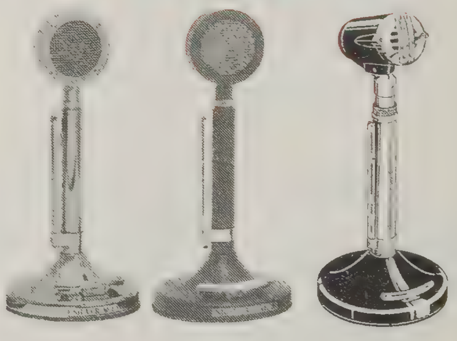
Variable Response Console

Model VRC

The VRC tuner-port speaker has a built-in audio equalizer plus peak and notch filters to improve radio audio response. It has a 4-inch speaker, a tuned baffle, and is constructed of heavy cast aluminum. A VRC-2 is available with the tuner port speaker and no electronics. With 13.8 VDC powering the VRC, you get up to 5 watts output.

HRO Prices:			
	VRC	5 watt	$229.95
	VRC-2	Passive	$99.95

Desk Microphones



D104	D104 Black	10DA
$99.95	$99.95	$99.95

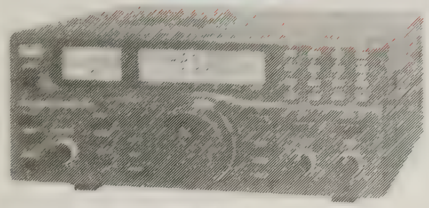
HRO Prices

The **D-104** is brightly chrome plated and polished to a mirror finish. The **D-104 Black** is finished in black with polished, bright brass-plated trim. Both models are solidly constructed of brass and die cast zinc and feature an American Eagle embossed on the back of the D-104 head. The semi-directional D-104 uses a metal sealed crystal, combined with an extra large diaphragm that gives it the distinctive sound that has been an industry standard for years. Frequency response: 200 Hz - 20 KHz. Impedance: 5000 ohms max.

The 10DA is a dynamic microphone especially designed for SSB. This chrome and black microphone is capable of up to a 90° tilt with adjustable tension. Frequency response: 300 - 3000 Hz. Impedance: 40 K ohms.

HF Receivers

JRC

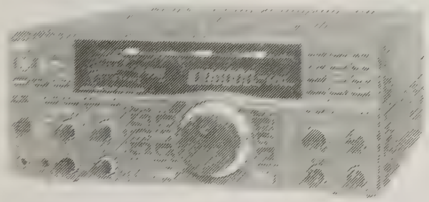


NRD-345

$599.95 – HRO Price

The NRD-345 HF receiver was developed for BCL and SWL fans who want to enjoy the world's broadcast programs and shortwave communications with sound clarity under good, interference-free air conditions. In shortwave propagation, however, there is a typical phenomenon call fading. To solve this, the NRD-345 incorporates an AM synchronous detection circuit to produce a constant level of regenerative carrier synchronized with the received carrier in phase and frequency. The receiver is a compact, lightweight, refined design and offers advanced multifunctions.

- Frequency range 0.1 to 30 MHz.
- Modes: AM, SAM, CW, SSB, FAX.
- 100 memories.
- 12 VDC at 0.8 amp.
- AM synchronous detection.
- Noise blanker.
- Uses one-chip DSS-IC.
- High sensitivity and wide dynamic range
- Clock / timer.
- Computer control.
- Multiple memory and frequency scanning.



NRD-545

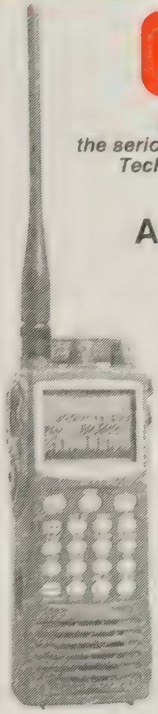
$1799.95 – HRO Price

The NRD-545 HF receiver provides the reproduction of clear, distortion free sound through the application of 40-bit digital signal processing (DSP). 13 type of circuits are now handled by the DSP unit to include all mode detection, IF filter, pass band shift, noise reduction, beat canceller, noise blanker, notch filter, AGC, BFO, RF Gain, squelch, tone control and s-meter. Features a variable tuning system, high sensitivity, wide dynamic range RTTY demodulation, large LCD display, remote control by a personal computer. The NRD-545 covers .01 to 30 MHz and 30 MHz to 200 MHz with the optional board. Covers all modes with outstanding sensitivity.

SWL Receivers

AOR

Discover AOR,
the serious choice in Advanced Technology Receivers.

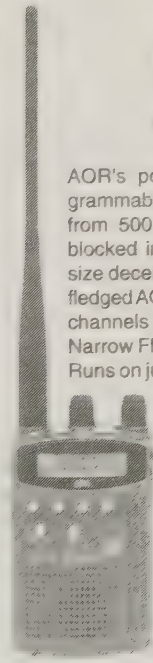


AR8200MKIIB All-Mode

$599.95

HRO Discount Price

AR8200MKIIB Wide Range Receiver is an all-new design, not an update. "All Mode" reception includes "super narrow" FM, wide and narrow AM; USB, LSB, CW and standard AM and FM modes. Covers 500 KHz ~ 2040 MHz(cell band blocked) with 1,000 memory channels (20 banks of 50 ch.). True carrier reinsertion in SSB modes. Includes 3 KHz SSB filter! Detachable MW antenna with negative feedback. Computer control and programming (requires optional connection cable). Download free control software from AOR web site! Optional internal cards expand capabilities. Many more features and accessory choices!



AR16B Receiver

$249.95

HRO Discount Price

AOR's pocket-sized computer programmable* Wide Ranger™ covers from 500 KHz to 1.3 GHz (cellular blocked in USA). Don't let its small size deceive you. The AR16B is a full-fledged AOR receiver with 500 memory channels (5 banks of 100 channels), Narrow FM, Wide FM and AM modes. Runs on just two AA Alkaline cells and has loud, clear audio. Additional features include 21 preset frequency band settings, voice de-scrambling function, monitor function to receive weak signals, S-meter, multiple operating profiles, backlit keypad and display, twelve selectable channel steps and more!

* separate computer program required

YAESU

NEW!

VR-5000

$929.95

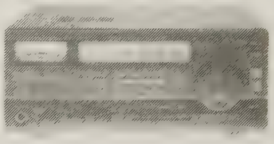
HRO Price

This multimode desktop scanning receiver has continuous frequency coverage from 100 kHz to 2.6 GHz (cellular frequencies are blocked and non-restorable). Features direct keypad entry, a wide variety of scanning capabilities, and 2000 memory channels which may be separated into as many as 100 memory banks. Memory banks and memory channels may have alphanumeric labels appended to them. Sort channels by frequency, alphanumeric channel name or by operating mode.

FRG-100B

$579.95

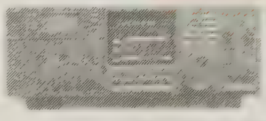
HRO Price



Yaesu's high performance receiver provides general coverage in CW, SSB, AM and FM modes from 50 kHz to 30 MHz.

- Selectable standard tuning steps plus user-programmable steps.
- LCD display with 10 Hz read-out.
- Broadcast band selection mode.
- 50 tunable memory channels.
- Multi-function scanning.
- Adjustable BFO w/ selectable CW sideband.
- Optional FM unit and CW filters.

ICOM



IC-R9000L

$9499.95

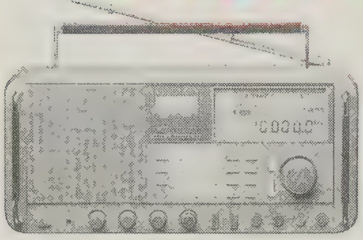
HRO Price

Notice: Federal and State Government Agencies Customers Only

Icom's top-of-the-line receives 100 kHz to 1999.8 MHz. Eleven bandpass filters use GaAsFETs for the VHF and UHF bands. Modes include: LSB, USB, CW, AM, FM, WFM (wide-FM) and FSK. The receiver has a multifunctional LCD display with spectrum scope to provide information on the status of the radio as well as incoming signals. It shows contents of the memories, dual clocks, weekly and daily timers, and frequencies of the dual VFO's. Dynamic range is 60 dB and sensitivity is approximately 1μV.

SWL RECEIVERS

GRUNDIG

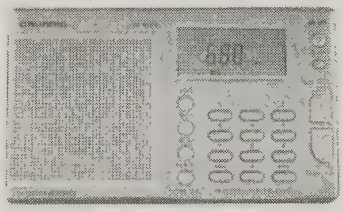


Satellit 800 Millennium

$499.95 – HRO Price

The Satellit 800 offers multi-mode reception of AM, FM stereo, SSB (USB / LSB) and VHF aircraft band over an extensive frequency range: 100-30,000 kHz, 87-108 MHz, and 118-137 MHz. To aid in tuning there are three built-in bandwidths. High dynamic range allows detection of weak signals among the strong.

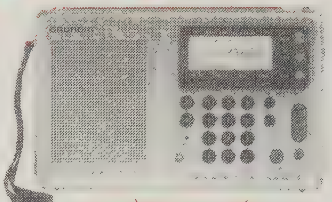
A large, multifunction LCD panel displays operating parameters. Frequency display to 100 hertz accuracy. Tune by direct frequency entry, pushbutton, or tuning knob. Features 70 memories, memory scan, dual clocks, and dual programmable timers. Separate bass and treble controls adjust tone. Jacks for headphones or external speakers allow you to listen to FM stereo. External antenna connections available or use built-in telescoping antenna. Operates on six internal D-cell batteries or the included AC wall transformer.



Yacht Boy 300PE

$99.95 – HRO Price

The Yacht Boy 300PE covers broadcast AM and FM (in stereo by earphones), and 13 SW bands from 2.3-26.1 MHz. Features digital tuning and display with 24 memories and direct frequency entry. Includes clock and 90-minute sleep timer. Has a dynamic micro-speaker and a jack for earphones. Use the telescoping antenna or attach an external antenna to the jack provided. Preserve the titanium-look finish with the protective travel pouch included.



HRO Discount Price $189.95

Yacht Boy 400PE

$269.95

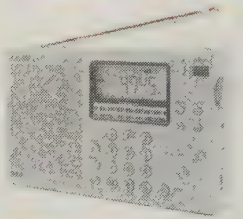
Suggested List Price

The Yacht Boy 400PE covers AM (520-1710 kHz), FM (87.5-108 MHz), SW (1.6-30 MHz), LW (144-351 kHz). The 400PE receives single sideband signals from amateur radio as well as military and commercial air-to-ground and ship-to-shore. It is excellent for the beginner to the advanced listener, especially for users needing a small radio with full features.

- Shortwave, longwave, AM and FM modes from 1.6 to 30 MHz with no tuning gaps.
- 40 programmable memory presets allow quick access to favorite stations.
- The LCD multifunction display simultaneously shows the time, frequency, band, automatic turn-on, and sleep timer.
- Clock, alarm and timer features provide dual alarm modes (beeper and radio). Dual clocks show time in 24 hour format. The sleep timer is programmable in 15 minute increments to 60 minutes.
- Enter frequencies directly by using the front panel key pad and the radio will automatically select the correct band.
- Operates on six "AA" batteries (not supplied) or use the included AC adapter on 110-120 VAC.
- The receiver comes in a pouch with earphones and a 23 foot "reel" antenna for shortwave reception.

Call Toll Free to Find Out About Special Offers

SANGEAN



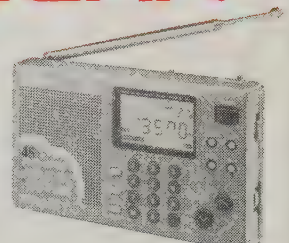
NEW!

ATS-505

$119.95

HRO Discount Price

This is the world's first affordable professional digital multiband receiver offering the performance and features of the more expensive table model receivers. It has continuous coverage, auto-memory scan, SSB reception, auto present system, human wake system, illuminated display, dual time, 12/24 hour display, AM/FM stereo/SW receiver, auto/manual search, tone control, keypad entry, 9/10 kHz switch.



ATS-404

$79.95

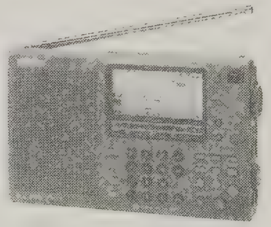
HRO Discount Price

This digital, AM/FM stereo shortwave receiver provides continuous coverage all shortwave bands and any frequency in between; has an auto preset system; auto memory scan; human wake system; illuminated display with seconds display; keypad entry; 45 preset memories; auto/manual search and 12/24 hour display.

ATS-909

$239.95

HRO DIscount Price



Features include:

- 306 memories: 261 SW, 18 MW, 18 FM, 9 LW.
- 5 tuning methods.
- ATS Auto Tuning System.
- SSB (LSB and USB) with 40 Hz tuning steps.
- Wide / narrow filter.
- Manual editing to insert 8 alpha-numeric characters on the display.
- Auto SW Search.
- Direct recall of a favorite station.
- 3 individual timers.
- Mono / stereo selector switch.
- PLL dual conversion receiver with tone control.
- Separate audio recorder output & standby control jacks.

Crank-Up AM / FM Radio

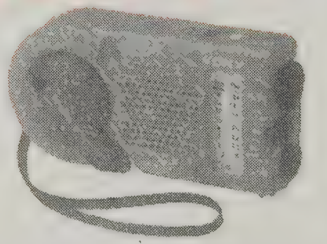
NEW!

SONY

ICF-B200

HRO Price

$79.95



The ICF-B200 AM/FM radio has a built-in high efficiency power generator. You never have to worry about batteries again. It is great for camping trips or when power is not available. May also be powered on 2 optional AA batteries. It comes in a "safety orange" color so it will be easily seen. Covers the standard AM and FM frequencies.

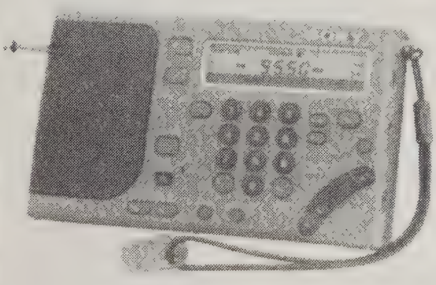
SONY SWL RECEIVERS

ICF-SW100S

$349.95 – HRO Price

The heart of this world-band radio system is a multi-band receiver the size of a cassette case. It weighs only 8 ounces with batteries. The kit provided includes a carrying case, a separate active antenna, multi-voltage AC adapter and in-the-ear stereo headphones.

- Covers FM 76-108 MHz, 150 kHz to 29.995 MHz plus SSB.
- Access frequencies directly with key pad.
- 50 station memory presets.
- Band selector accesses SW bands.
- Auto-scan search; pauses for 1.5 seconds.
- LCD has 24 city name/time display.
- Built-in clock with alarm and sleep timer.
- Two position tone control.
- Requires 2 AA batteries (not supplied) or power from the AC adapter included.
- Jacks for an external speaker, external antenna and DC in (3 volts).



ICF-SW1000T

$429.95 – HRO Price

This world band radio has a built-in cassette player / recorder with auto reverse, auto tape select and a feather-touch mechanism. It has timer record capability with cue and review. The built-in clock also has alarm and sleep functions.• SSB, FM stereo, AM (LW/MW/SW)

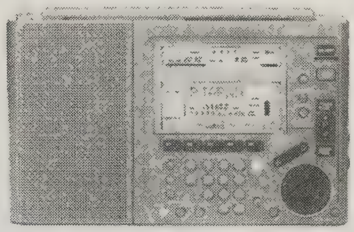
- 10-key direct access tuning.
- 1 kHz step tuning.
- 32 station memory presets.
- Dual standby.
- The detector circuitry is synchronous.

ICF-SW07T

$449.95

HRO Price

This world band radio comes with the AN-LP2 active antenna and features synchronous detection AM, and SSB. Also receives FM. Covers FM 76-108 MHz, SW 1,621-29,999 kHz, MW 530-1,620 kHz, LW 150-529 kHz. Uses 2 AA batteries (not supplied). Includes AC adapter.



ICF-SW77

$449.95 – HRO Price

The ICF-SW77 is the step-up model of the popular ICF-2010. It has provisions for 150 station memory presets to find your favorite station quickly. For better tuning, the ICF-SW77 has 50 Hz tuning resolution. Enter the name of a station and it will display when the particular memory is selected.

Family Radio

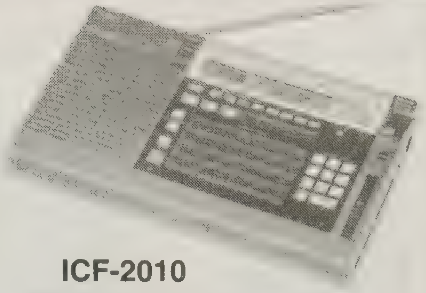
NEW!

2-Way Radio System

ICB-U655

$99.95 – HRO Price

Sony's high quality 2-way radio communications system is easy to use. No license is required. It features 14 channels with 38 privacy codes and transmits up to a 2 mile range. Group talk and auto channel scan provides for efficient communication. Has auto power-off, backlit LCD display, battery level indicator and belt clip. The water-resistant case comes in gray or yellow.

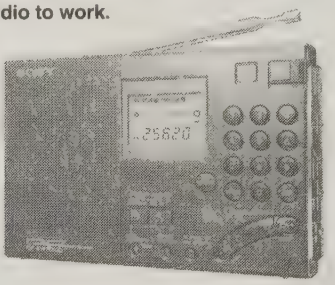


ICF-2010

$359.95 – HRO Price

This popular portable SWL receiver is a super-compact world band radio that delivers fast direct access tuning with great accuracy.

- AM coverage 150-29.999 MHz.
- FM broadcast band coverage.
- Dual PLL quartz frequency tuning provides stability and reduces drift.
- Built-in quartz clock and Sleep Timer with 15, 30 or 60 minute settings.
- Has BFO for receiving USB, LSB and CW.
- Instant recall of 32 station presets.
- Memory scan tuning samples preset stations.
- Automatic band scan gives a sample of each station on the selected band.
- Switchable IF bandwidth has narrow mode.
- Comes with the AC-DC adapter.
- The clock requires 2 AA batteries (not included). **These must be installed for the radio to work.**



ICF-SW7600G

$199.95 – HRO Price

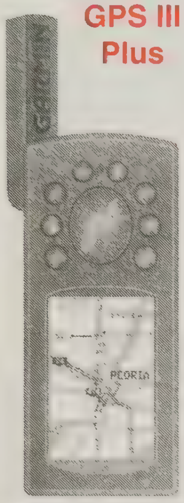
Travelers love this versatile World Band Radio® receiver with stereo FM reception and instant access to all channels and bands. The built-in clock timer has sleep and stand by functions.

- AM (LW, MW, SW) / FM stereo reception
- Dual-conversion superheterodyne circuitry
- 10-key Direct Access™ tuning.
- PLL quartz synthesis tuning gives accurate, drift-free frequency selection.
- SSB circuitry for reception of voice and Morse code (CW) on amateur bands.
- Manual and automatic scan tuning.
- The display is liquid crystal (LCD).
- Antennas include a built-in ferrite bar for MW and LW and a telescoping whip.
- A jack provides easy antenna connection.
- A 3" speaker and high / low tone provides a wide range of sound for music or news.
- Requires 4 AA batteries (not included) or the optional worldwide AC adapter.

GARMIN

Garmin's Personal Navigator GPS receivers are low-cost and full-featured. This family of satellite navigation equipment can guide you anywhere.

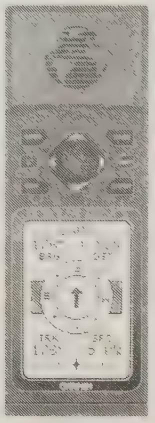
GPS III Plus



The GPS III Plus improves upon the detailed base-map that made the GPS III so popular. It adds enhanced cartographic capabilities formerly found only in high-end automotive navigation and marine chart plotting units. This basemap contains more than 10,000 additional towns, airport locations and secondary roads within metro areas. It has an extensive, detailed database of exit information for the federal interstate system. Plug the III Plus into a PC to download data from Garmin's optional line of MapSource™ CD-Roms.

- 12 parallel channel receiver, differentially ready.
- 10 year lithium battery back-up.
- 24 hour battery life using 4 AA alkalines.
- Position Averaging.
- 500 user waypoints.

HRO Price: $367.95

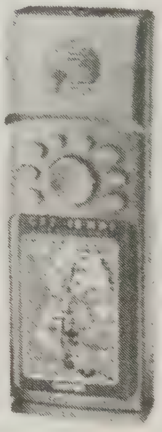


GPS 12 CX

This fast, accurate 12-channel GPS with color LCD is for boaters, hunters and hikers who use a GPS in the most challenging environments.

- PhaseTrac 12 parallel channel receiver provides fast position fixes in tough conditions like tall buildings or trees.
- Rugged, compact case meets military 810(e) specification.
- External antenna.
- Internal beeper alarm.
- 500 user waypoints with alphanumeric name & comments.
- 20 reversible routes of up to 30 waypoints each.
- TracBack navigation turns your track log into a route home.
- 9 proximity alarms.
- Over 1000 track log points, position averaging, emergency erase, and cloning.
- Up to 12 hours life with four AA batteries.

HRO Price: $239.95



GPS 12 Map

This model combines the enhanced software features of the popular GPS III Plus with the rugged design of the GPS 12.

The basemap includes information for North and South America including cities, interstates, lakes, rivers, railroads, coastlines, and exit information for the interstate highway system. Add more mapping information by reading a MapSource™ CD-Roms into your PC and downloading into the GPS.

The 12 Map has 12 parallel channels and the same rugged physical characteristics as the 12 CX (excluding color display). It has waterproof case, dedicated zoom keys for quick map scaling, and a high-resolution LCD display with backlighting. It gets up to 36 hours of battery life with four AA batteries.

HRO Price: $349.95

GBR 23

For Higher Accuracy Applications

(requires Garmin GPS, replaces GBR-21)

The Differential Receiver is a remote, auto-tuning unit with built-in H-field antenna. The GBR-23 provides position correction data to all Garmin differential-ready, marine and recreational GPS receivers. Inclues 30 feet of cable. **HRO Price: $463.00**

GPS II Plus

View the GPS-II screen vertically or horizontally. It has an external antenna to improve reception, zoom keys, diagonal paning, auto start/stop trip timer, average and maximum speed recordings.

- MultiTrac8™ continuously tracks and uses up to 8 satellites.
- EZinit feature for fast initialization.
- Dedicated keys for zooming from 0.2 to 360 miles.
- Rocker keypad, backlit LCD display, moving map plotting.
- User selectable navigation screens for compass or graphic highway guidance.

HRO Price: $199.95

MapSource™

These accessory CD-Roms augment the basemap in several Garmin GPS units: GPS III Plus, NavTalk, StreetPilot, eMap, and GPS 12 Map. Data included are highways, roads, hiking trails, snowmobile trails, elevation contours, point elevation, geographic names, summits, churches and schools. Selectively load the maps for just the areas you need.

- **US Roads and Recreation** for detailed coverage of the US including nautical navigation aids.
- **WorldMap** for general coverage of the world.
- **US Topo** for terrain contour and elevation detail of the US including Alaska and Hawaii.
- **MetroGuide USA** for Metro Guide in CD-Rom format.

You can browse these color maps on your PC using the zoom and pan functions.

Requires Windows 95, 98 or NT 4.0; 16MB-RAM; 10MB free hard disk storage; CD-Rom drive; 256 color display; mouse.

NavTalk™

Garmin's NavTalk™ is the ultimate in outdoor survival gear: a combination analog cellphone and GPS receiver.

The NavTalk phone has touch-tone location reporting (including the ability to send your exact position and have it displayed on another unit), numeric paging, an electronic "phone book" capable of 100 entries, and intelligent security lock capability. The phone has one-touch dialing and a message center to collect missed calls and pager messages.

NavTalk's GPS shows exactly where you're calling from on a high-resolution backlit display. It is the same 12 parallel channel receiver used in the GPS III Plus. It comes with an extensive internal database including cities, plus millions of miles of roads and highways across the entire US, Canada, and South America.

Optional added feature: Sign up for FirstAssist™ one-touch emergency service. Then, with the push of the red "9" button, your location is transmitted and you're automatically connected to a response center which will send help to your location.

HRO Price: $499.95

GLOBAL POSITIONING

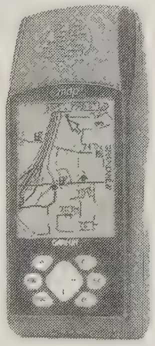
eTrex™

NEW!

12 Parallel Channel GPS Receiver

The eTrex™ takes the best features of a 12 parallel channel GPS and puts them in a six ounce package that is only four inches high and two inches wide. It will fit in the palm of your hand. It will run for 180 hours on just two AA batteries. The eTrex will continue to maintain a tight satellite lock even while operating in forest-like conditions. It stores up to 500 user waypoints with graphic icons and has Garmin's exclusive TracBack™ that will reverse your track log and help you navigate your way back home. Uses animated graphics that will help you identify waypoints quickly and easily. **HRO Price $129.95**

eMap Deluxe



This pocket-sized six-ounce GPS boasts an extra-large display that shows even more map data than you've come to expect from Garmin. The 12 parallel channel GPS receiver operates for up to 14 hours on just two AA batteries.

Features an internal basemap containing information on North and South America including state and country boundaries, lakes, rivers, streams, airports, cities, towns, coastlines, and US, state, and interstate highways. Provides exit information for interstate highways. You will know when you are near services such as food, lodging, and gas stations.

Compatible with Garmin's line of downloadable MapSource CD-Roms including US Roads and Recreation, WorldMap, US Topo, and MetroGuide USA. When paired with MetroGuide, eMap has can look up address and telephone number information for nearby services and points of interest. Stores eight or 16 megabytes of downloaded CD-Rom information at a time depending on the size of the cartridge you use in the unit.
HRO Price $299.95

DGPS 53

Integrated Differential GPS

Combines Garmin's powerful 12 channel GPS receiver and antenna with an auto-tuning differential beacon receiver. It is the perfect solution for integration with chart plotters, radar and PC. No grounding required. Uses an internal H-field antenna. Includes 30 feet of cable. **HRO Price $652.95**

Color Version now available

StreetPilot

This GPS combines satellite tracking technology with detailed electronic maps. It contains a world reference map and shows interstate and state highways plus rivers and lakes in the US, Canada, and Mexico. Commonly-used streets are shown in metro areas. Plug in an optional data card to enjoy street-level map detail. (Call HRO about available cities.) Enter an address and the unit will find it on the map. Shows hotels, restaurants, shops and other points of interest. **HRO Price $499.99; Color Version $699.95**

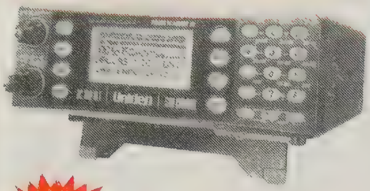
Garmin Accessories

Part Number	Description	Street Pilot	GPS 12CX	GPS II Plus	GPS III	Nav Talk	GPS III Plus	ETREX	EMAP	HRO Price
Antennas, etc										
010-10052-00	GA 28 Low Profile remote marine antenna with 30' cable / BNC	*			*					$129.95
010-10052-02	GA 26 Low Profile antenna, mag. & suction mounts, 8' cable, BNC	*		*	*					$99.95
010-10061-00	GA 26 Trunk Mount	*		*	*					$17.95
010-10062-00	GA 26 Flange Mount	*		*	*					$17.95
010-10067-00	GA 28 Flange Mount Kit	*								$20.95
010-10139-00	GA 26 Suction Cup Mount	*		*	*					$17.95
010-10152-00	GA26 8 ft extension cable	*		*	*					$38.95
011-00237-00	Handheld / portable Antenna	*		*	*					$93.95
013-00002-00	30 ft low-loss antenna extension cable with connectors for GA 28	*								$107.95
Bracket Mounts										
010-10048-00	Swivel Mount Bracket		*							$31.95
010-10111-00	Dash Mount Bracket			*	*					$31.95
010-10115-00	Bicycle Mount Kit		*							$17.95
010-10122-00	Bicycle Mount KIt			*	*					$25.95
010-10199-01	Bean Bag Mount (No installation required)	*								$19.95
010-10199-02	Dashboard mount base only	*								$17.95
Cables, Etc										
010-10082-00	Power/Data Cable	*		*	*					$27.95
010-10084-00	Cigarette Lighter Adapter		*							$39.95
010-10085-00	Cigarette Lighter Adapter	*		*	*					$23.95
010-10086-00	Data Cable		*							$22.95
010-10141-00	PC Interface Cable	*	*	*	*					$38.95
010-10142-00	Data transfer cable (unit/unit)	*	*	*	*					$46.95
010-10164-00	PC Interface Cable w/8v cigarette lighter adapter		*							$50.95
010-10165-00	PC Interface Cable w/cigarette lighter adapter	*		*	*					$45.95
Cases										
010-10199-03	Carring Case w/storage for cartridges (Street Pilot only)	*								$24.95
010-10232-00	Carring Case w/storage for cartridges (Color Map only)	*								$24.95
010-10220-00	Leather case w/view window					*				$24.99
010-10221-00	Soft Holster					*				$19.99
Other										
010-10054-00	PC Software and Cable Kit	*	*	*	*					$92 95
010-10227-00	Blank 8MB Mem Cartridge	*								$99.99
010-10226-00	Blank 16MB Mem Cartridge	*								$149.99
010-10203-00	12v Cigaarette Power Cord							*	*	$39.98
010-10206-00	PC Interface Cable							*	†	$39.95
010-10205-00	Powercable (bare wire)							*	*	$22.85
010-10266-00	Neoprene carrying case							*	*	$14.99
010-10267-00	Bicycle Mount							*		$17.99
010-10202-00	Dash Mount								*	$39.98
010-10262-00	Suction Cup Mount								*	$39.98
010-10204-00	Handlebar Mount								*	$17.99
010-10235-00	Leather Carry Case								*	$24.99
010-10234-00	Yellow Protective Case								*	$15.00
010-10052-05	GA 27C External Antenna							*	*	$99.99
010-10157-00	8 ft Extension for GA 27C							*	*	$38.09
010-10215-00	US Roads & Recreational					*	*	*	*	$99.99
010-10215-01	MapSource World Map					*	*	*	*	$89.95
010-10215-02	Map Source US Topo					*	*	*	*	$119.99
010-10215-13	MapSource US Metro w/ 8MB mem cart					*	*	*	*	$199.99
010-10215-03	MapSource US Metro	*						*	*	$149.99

† Included with EMAP DELUXE and works with MAPSOURCE CD's to download waypoints and routes.
All MAPSOURCE CD's will work with both EMAP and ETREX, however, on ETREX, the map detail will not be downloaded.

uniden®

Scanner



NEW!

BC-780XLT

TrunkTracker III

$TBA

HRO Price

The BC-780XLT is the latest trunk tracking base scanner from Uniden. Whether you are a professional or a hobbyist, the BC-780XLT puts you behind-the-scenes for all the action. With its innovative features and advanced "Smart Scanner" design, the BC-780XLT offers you more than ever before. It tunes into police, fire, weather, ambulance, military, CB radio, FRS radio, amateur radio, marine and more!!

- 500 channels, 10 bands, 10 priority channels.
- Continuous band coverage (25 MHz to 1.2 GHz) excluding cellular frequencies.
- TrunkTracker III (EDACS, Mortorola and E.F. Johnson.
- Alpha tagging of band, channel and search range.
- 2 line alpha display.
- CTCSS / DCS built-in.
- Control channel only mode.
- S.A.M.E weather alert.
- Clone feature allowing programming of another scanner's frequencies (cloning cable and compatible scanner required).
- PC control permits remote control of the scanner (optional software required) through the scanner's DB-9 RS-232C port.
- Beep Alert allows the user to program any channel (up to 500) to beep when a signal is present on that channel.
- Record function allows the designation of a channel that is to be recorded by an external device (not included).
- VFO control allows tuning through frequencies, channels, alpha characters with VFO tuning knob.
- Total channel control allows for programming delay, step, mode, priority, attenuation on a per channel basis.
- Search plus allows the user to program up to 10 search ranges, auto search and store, and channel search.
- Required 12 VDC. External power jack allows for power from an optional external supply.

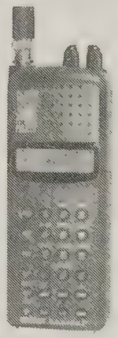
Trunk Tracker

BC-895XLT

Mobile / Base

$229.95 – HRO Price

The BC-895XLT is the industry's first trunk tracking base scanner. Search and monitor all the groups within a trunked system. Has 300 channels and includes 12 bands with aircraft, weather, and built-in CTCSS. Includes an RS232 port for computer control.



BC-245XLT

Handheld

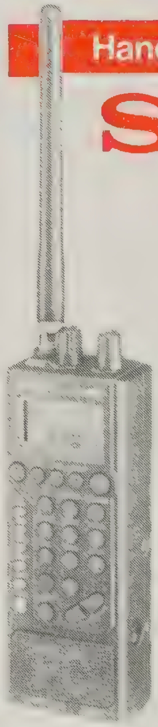
$219.95

HRO Price

This fully programmable 800 MHz trunk-tracking hand-held scanner has 300 channels (10 priority) to program, 12 bands in 10 banks including aircraft and 800 MHz (cellular frequencies blocked). Pre-programmed service search allow you to toggle through police, fire, emergency, aircraft, marine and weather frequencies. Trunk scan and scan lists search for activity on one trunk or create lists of multiple groups to scan (e.g., fire or police). Trunk search monitors all groups within a trunked system. The LCD display shows the channels being scanned and the frequency for each.

Handheld Scanners

SONY



ICF-SC1PC

$219.95

HRO Price

Sony's scanner covers all frequencies allowed by the FCC between 35 MHz and 1,300 MHz (cellular band blocked). This includes 9 bands: police, aircraft, fire/emergency, weather, marine, FM and TV frequencies. AM/Narrow and FM/Wide reception is provided. There are 300 memories for storing your favorite frequencies.

The ICF-SC1PC has a bi-directional PC interface with search and control capabilities. It includes a CD-ROM which lists all frequencies in the U.S. Use this CD-ROM with the PC interface to search and create files by a variety of search modes.

Scanner Software

SPS 1.0

Scanner Programming System for the Uniden BC-245XLT and BC-895XLT

The SPS contains suggested scanner programming information for more than 40 of the largest metro areas in the United States. In seconds, SPS will automatically program your BC-245XLT or BX-895XLT scanner for use in any included city (programming cable not included).

For programming and control purposes, the SPS includes a Limited Special Edition copy of WinScan scanner utility for PC. This copy of WinScan is fully functional for 15 days. After the 15-day Limited evaluation period, you may continue to program your scanner as often as neccessary using the included data files for metro areas, as well as edit and save your files. Only active radio control functions will be disabled. If you don't own a BC245 or BC895, SPS will print a suggested scanner programming worksheet, complete with the frequencies and talkgroups needed to program your scanner by hand for any of the included cities.

HRO Price: $24.95

WinScan®

Scanner Control Software for the Uniden BC245xlt and BC895xlt

You can now control either the Uniden BC245xlt or BC895xlt with one easy software package.

- Auto detects which scanner is connected.
- Simple interface. Looks and works like the front of the scanner. (Manual control not implemented.)
- Build customized scan lists.
- Add Alpha tagging to the frequencies you listen to. (Tags appear only on PC, not on the scanner.)
- Upload scanner's memory to a PC database.
- Create APF files to share your scanner information with others.
- Scan in conventional and trunking mode simultaneously on your 895.
- Program EDACS and Mototola talkgroups and frequencies on your 245.
- Create different scan lists for multiple states and cities.
- Has Speed Enhancer™ scan mode for the 245 multi-scan feature.

HRO Price: $59.95

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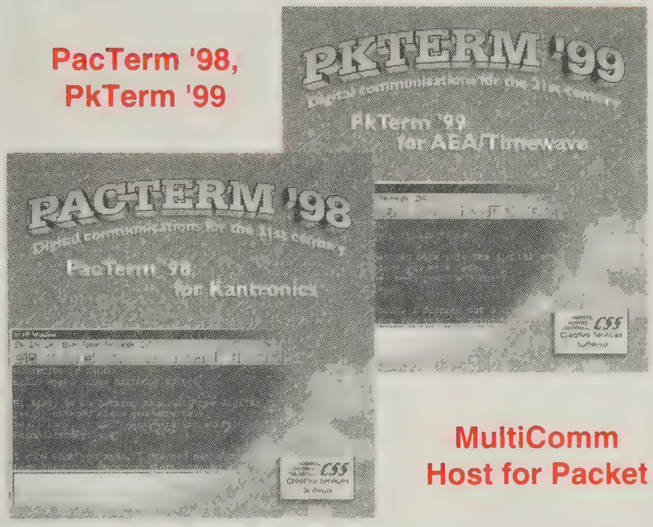
CSS
Creative Services
Software

NEW!

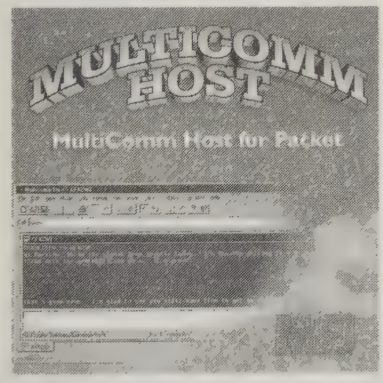
SOFTWARE

PacTerm '98, PkTerm '99


PKTERM '99
Digital communications for the 21st Century
PkTerm '99
for AEA/Timewave
PACTERM '98
Digital communications for the 21st century
PacTerm '98
for Kantronics
CSS

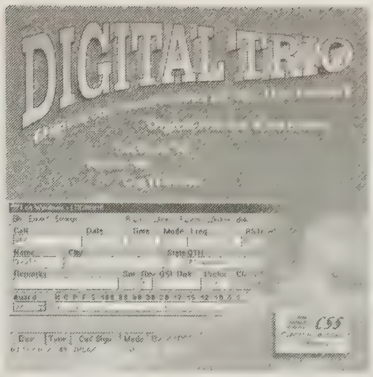
MultiComm Host for Packet

Now you can own the premier software packages for your Kantronics, AEA / Timewave or MFJ TNCs. Explore Packet and the HF modes of CW, RTTY, FEC, AMTOR, PACTOR, GTOR and NAVTEX. Fully featured with CD callbook support, interaction with Log Windows and other logging programs. Macros for contesting, basic radio control and more! Full support and free version upgrades. Requires multimode TNC for HF modes (MFJ version supports Packet only).



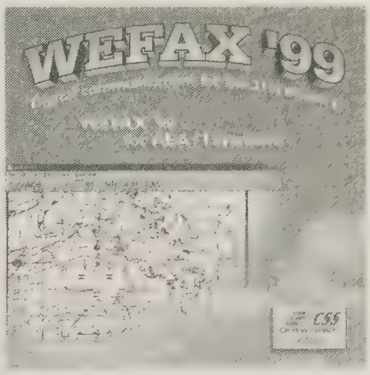
- Multi-stream packet support.
- Text and binary file transfers with YAPP.
- COM1 to COM35.
- User defined colors and fonts.
- Change HF modes with the click of a mouse!

Model	Descrition	HRO Price
PacTerm '98	PkTerm '99 for Kantronics TNCs	$79.95
PkTerm '99	PacTerm '98 for Kantronics TNCs	$79.95
MultiComm Host	Multicomm Host for Packet for MFJ TNCs	$49.95
Wefax '99 KAN	WeFax '99 for Kantronics TNCs	$59.95
Wefax '99 AEA	WeFax '99 for AEA/Timewave TNCs	$59.95
LogWIndows	LogWindows 3.07	$69.95
Digital Trio KAN	Digital Trio for AEA/Timewave TNCs	$129.95
Digital Trio AEA	Digital Trio for Kantronics TNCs	$129.95



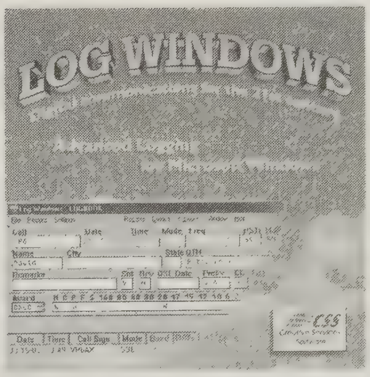
The Digital Trio for Kantronics or AEA/ Timewave TNC's

PacTerm '98 or PkTerm '99, LogWindows and Wefax all in one low cost package. The best value for the ham that wants to get into the digital modes or even for the more experienced! It's a deal you don't want to miss out on!



Wefax '99 for Kantronics or AEA/ Timewave

Receive weather fax pictures over HF radio with your Kantronics or AEA/Timewave TNC's. WeFax '99 for Windows 95, 98, NT, 2000 and Windows Me.



- DXCC, WAS and other awards.
- TNC control software interaction.
- Rotator control.
- Radio control.
- CD Callbook support.
- Voice synthesized DX spot alert.
- IOTA support.
- Telnet Cluster support.
- Free 3.x upgrades and free upgrade to 32 bit version.
- Fully supported.

LogWindows

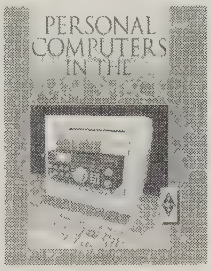
The first and best Windows based logging program is now even better than ever. For Windows 3.1 to Windows Me, LogWindows is second to none in features and support.

LogWindows is simple to use. Makes rag chewing, paper chasing and contesting easier, and is great for the ham shack that has a computer in it.

Why wait? Log Windows will make your hamming more fun. Best of all, you'll never have to keep a paper log again!

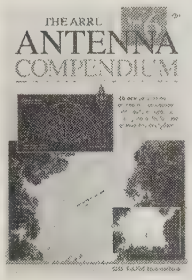
ARRL BOOKS

Personal Computers in the Ham Shack



Hams and computers, computers and hams – they're all but inseparable these days. Now there's one place to learn how to use your personal computer for all kinds of ham-related tasks: logging and contesting, station control, QSLing and circuit design. Includes a glossary of terms and a resources chapter with references for further information. **$15.95**

ARRL Antenna Compendium
Volume 6

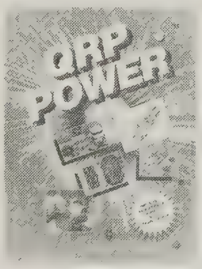


43 All new articles! You'll find 9 articles that deal with low-band antennas and operating, 4 on antennas for 10 meters and many more. Learn how to motorize a tower, how to safely put up a through-the-roof antenna system. CD-ROM included with propagation prediction software! **HRO Price $20**

Getting On Track with APRS
A Hands-On Guide to the Automatic Packet Reporting System

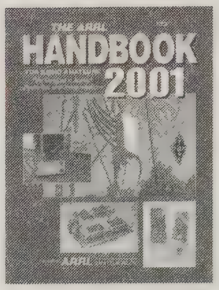
Your one stop for quick-and-easy iinstructions for installing and using the exciting new APRS software. Anyone with a packet station and computer can join the fun. APRS provides a real-time map display of participating stations. When used with a GPS receiver, it is ideal for tracking moving stations. Separate sections cover DOS, Windows and MAC platforms. Chapters include custom installation, map-making, harware requirements, and even specialized uses such as direction finding, telemetry and DX plotting. **$14.95**

QRP Power



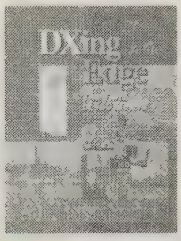
Whether you've just been bitten by the urge to operate flea power, or you've already discovered just how much fun it is to operate with 5 watts or less, this is the book you've been looking for. It's crammed with projects you can build and resource information you can use. In addition to the best recent QRP-related articles from QST, QEX and The ARRL Handbook, there's a new, in-depth article on NN1G's popular 40-40 transceiver. **$12**

The ARRL Handbook for Radio Amateurs



This 78th edition is a must for every ham and experimenter. Among the new projects in this edition is a new antenna tuner project, an amplifier for the upcoming Phase 3D satellite, and a new multimode VHF superregenerative receiver. If it's know-how you're looking for, you'll find it in The ARRL Handbook. **Retail $32.00**

DXing on the Edge:
The Thrill of 160 Meters



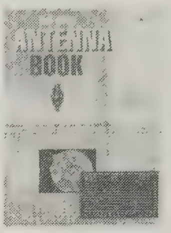
A fascinating chronicle of what it takes to navigate the 160 meter band. Includes useful operating tips and descriptions of many practical antennas needed to be successful on 160 meters. This book includes an audio CD with some truly exotic and exciting QSOs made from prominent DX stations. Many photos and historical information included, from the early 1930s through the present day. by Jeff Briggs, K1ZM. **Retail $29.95**

The ARRL 2000-2001 Repeater Directory

THE ARRL REPEATER DIRECTORY 2000 2001

Pocket-sized directory is the single most trusted source of VHF/UHF repeater listings. • Thousands of FM voice and ATV repeater frequencies. • Coverage for North, Central and South America, and some listings in Europe and the Middle East. • Latest directory of Frequency Coordinators and ARRL Officers. **$8**

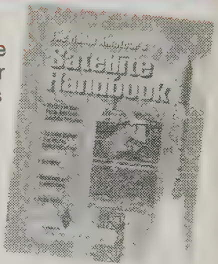
The ARRL Antenna Book
19th Edition.



Hams and professionals will find a wealth of fun projects and practical information: Designing, building and installing almost any imaginable type of antenna; Selecting and using the proper feed line and antenna tuner; Expanded coverage of low frequency antennas; Greatly expanded coverage of elevation angles needed for world-wide HF propagation; New chapters on the fundamentals, including the effects of irregular local terrain; Expanded information on mobile and maritime antennas. Software Included. **Retail $30**

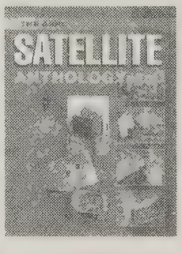
Satellites and Space

The Radio Amateurs Satellite Handbook



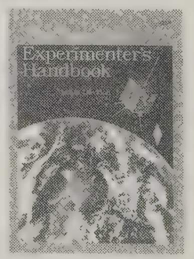
By Martin Davidoff, K2UBC (author of the highly acclaimed predecessor, The Satellite Experimenter's Handbook). The most comprehensive book ever written about amateur satellites! Long-time satellite operators and beginners will enjoy its in-depth coverage: setting up a station, choosing the right antenna for the right satellite, and tracking the "birds." Includes operating details for every active amateur satellite, the upcoming Phase 3D satellite, and all Amateur Radio operations from the US Space Shuttles (SAREX) and Russian Mir space station. Thorough appendices covering profiles of computer programs, Internet sites, FCC Rules, and a complete history of amateur satellite and space operations. **Retail $22**

Satellite Anthology, 5th Edition



Here are the best articles on the current (and future!) amateur spacecraft from QST, The AMSAT Journal, the World Wide Web and other sources. We've also included recent satellite columns from RadCom (Great Britain), Radio ZS (South Africa) and Amateur Radio (Australia). Includes specific operating details for the newest amateur satellites! **HRO Price $15**

Satellite Experimenter's Handbook



Widely recognized as the best book available on ham satellites, the Satellite Experimenter's Handbook has the information you need to get on or enhance your enjoyment of the amateur satellites. You'll find an immense store of valuable data on the active satellites, plus a history of the amateur space program, ground station equipment and antennas, orbits, tracking, weather and TV satellites, and more. **$20**

Weather Satellite Handbook

WEATHER SATELLITE HANDBOOK

A popular and easy-to-use reference for anyone interested in viewing our world from space. The revised and expanded 5th edition features an interface project that allows you to capture fascinating images from various weather satellites and HF WEFAX broadcasts (a kit is available). You'll learn how weather satellites function, how to build or modify your own receiving equipment and how to buy or build the right antennas. **$20. Companion software** (revised for the 5th edition of the book) available for IBM PCs and compatibles. **$10**

ARRL TECHNICAL BOOKS

AIM	Antenna Impedance Matching
DB	Data Book
DN	W1FB Design Notebook
FSIR	First Steps in Radio
HK	Hints and Kinks
ITRFD	Intro to Radio Freq. Design
LBD	Low Band DXing
MEM	Microwave Experimenter Manual
OM	Operating Manual
PDOYA	Yagi Design
QRP	QRP Classics
RADIODESIGN	Radio Design IBM Software
RASH	The Radio Amateur's Satellite Handbook
REFLECTIONS	SWR Theory
RFE	RF Exposure and You
RFI	Radio Frequency Interference
RSGB-AWARDS	Awards Book
RSGB-OP MAN	Amateur Radio Operating Manual
RSGB-RCH	Radio Communication Handbook
RSGB-VHF	VHF / UHF Handbook
SA	Satellite Anthology
SEH	Satellite Experimenters Handbook
SSD	Solid State Design
SSS	Spread Spectrum Source Book
TFRB	The FCC Rule Book
TLT	Transmission Line Transformers
TAH	ARRL 2000 Hardcover Handbook
OARS	Operating an Amateur Radio Station
WSH	Weather Satellite Handbook

ARRL LISTINGS

DXCC LIST	Official ARRL DXCC List
LB	Log Book
ND	Net Directory
RD	Repeater Directory

ARRL READING

CQGS	CQ Ghost Ship
DVQTH	Death Valley QTH
DXBD	DX Brings Danger
DXCC Companion	DX Guidebook
FSTS	From Spark to Space
GCQ	Grand Canyon QSO Book
HFNH	Help for New Hams
MBQ	Murder by QRM
MORSE CODE	The Essential Language
NCJ	Bi-Monthly National Contest Magazine
NS	Night Signals
NN	Novice Notes
QRP NOTE	QRP Notebook
QST	Monthly Magazine of ARRL
SOSAM	SOS at Midnight
YVC	Your VHF Companion
FIREWATCH	Firewatch Novel
ET	Easy Target Novel

ARRL PACKET BOOKS

GTPR	Gateway to Packet Radio
PSMSA	Packet Speed, More Speed & Apps

ARRL MAPS

GRID ATLAS	Grid Locator Atlas
GRID MAP	Grid Locator Map
USCAM	U.S. Call Area Map
WM	World Map

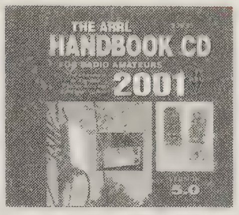
ARRL ANTENNA BOOKS

AB	18th Antenna Book
ACVOL5	Antenna Compendium Vol. 5
AN	W1FB Antenna Notebook
NAN	Novice Antenna Notebook
RSGB-ANT	H.F. Antenna Book
RSGB-WIRE	Wire Antennas
YAD	Yagi Antenna Design

ARRL CD-Roms

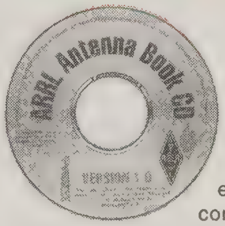
ARRL Handbook

Year 2001 Edition!
The ARRL Handbook CD
for Radio Amateurs Version 5.0
for Windows
and Macintosh*



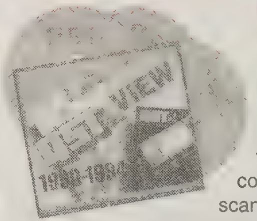
All of the text and illustrations from the printed ARRL Handbook, on CD-ROM! Every word and every page! Projects, antennas, and easy-to-read explanations of fundamental theory! Nearly every mode and device used by radio amateurs is covered. The CD-ROM format makes it easy to access the information you need: Versatile search capabilities take you to the exact information you're looking for. Hear audio clips of a wide variety of amateur radio modes. Print from the entire ARRL Handbook. Live World Wide Web links! Zoom in and out to see drawings, photos and text enlarged or reduced. *Some supplementary software utilities included for Windows and DOS only. **HRO Price $39.95**

The ARRL Antenna Book CD 1.0



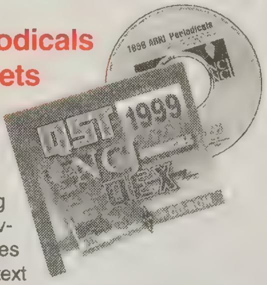
For Windows and MacIntosh. Now the popular Antenna Book is available on an easy to use, fully-searchable CD-ROM! The entire book is at your command–every word and every page–PLUS 70,000 pages of band-by-band propagation tables for 140 worldwide locations! Uses Adobe Acrobat Reader to view, navigate, search and print from all 28 chapters. That's in-depth coverage of antennas, feed lines, and propagation. Design, build and install any imaginable type of antenna! DOS-based software to optimize your antenna designs (Yagi Analyzer), a transmission line program, and all other Antenna Book software is included. **HRO Price: $39.95**

QST View



Here are back issues of QST in convenient, space-saving CD-ROM format. Each page – all the ads, articles, columns and covers – has been scanned to provide a black-and-white image that can be read on your computer screen or printed. Easy-to-use software included on the CD allows you to: search for articles by title and author, select specific year and issue, and browse individual articles or columns. Available sets: 1990-94; 1985-89; 1980-84; 1975-79; 1970-74; 1965-69; 1960-64; 1950-59; 1940-49; 1930-39. Each set of CDs has an index to aid in finding the page or section of the issue you want to view or print. Requires Microsoft Windows 3.1 or higher. **Each set $39.95**

ARRL Periodicals CD-ROM Sets



Each Periodicals CD-ROM is a compilation of an entire year's worth of reading on one space-saving CD! Features you'll find: the full text of every QST (ARRL's membership journal), QEX (The ARRL Experimenter's Exchange) and NCJ (The National Contest Journal) published during a year—including every article, column, and product review; every drawing, table, illustration and photograph (many in color); more than 1000 advertisement images, indexed alphabetically by vendor and product. A powerful search engine finds your desired information quickly by article titles, call signs, names or just about any other word. Windows printing and Clipboard support, so you can print out articles or share them with other Windows applications. Create bookmarks at often-used articles and more.

HRO Accepts these Credit Cards

DISCOVER MasterCard VISA

Part Number	Description	HRO Price
CDROM 30-39	QST Magazine 1930-1939 Editions	$39.95
CDROM 40-49	QST Magazine 1940-1949 Editions	$39.95
CDROM 50-59	QST Magazine 1950-1959 Editions	$39.95
CDROM 60-64	QST Magazine 1960-1964 Editions	$39.95
CDROM 65-69	QST Magazine 1965-1969 Editions	$39.95
CDROM 70-74	QST Magazine 1970-1974 Editions	$39.95
CDROM 75-79	QST Magazine 1975-1979 Editions	$39.95
CDROM 80-84	QST Magazine 1980-1984 Editions	$39.95
CDROM 85-89	QST Magazine 1985-1989 Editions	$39.95
CDROM 90-94	QST Magazine 1990-1994 Editions	$39.95
CDROM 95	QST, QEX, NCJ, HR on CD 1995	$19.95
CDROM 96	QST, QEX, NCJ on CD 1996	$19.95
CDROM 97	QST, QEX, NCJ on CD 1997	$19.95
CDROM 98	QST, QEX, NCJ on CD 1998	$19.95
CDROM 99	QST, QEX, NCJ on CD 1999	$19.95

BOOKSHELF

Amateur Radio Books

Stealth Amateur Radio –
Operate from Anywhere
By Kirk A. Kleinschmidt, NT0Z

Adventure into the world of hidden stations and invisible antennas! Set up and operate a station without calling attention to yourself. Successfully operate a low power (QRP) station. Install safe antennas, including indoor antennas. Build invisible antennas. Install and operate a mobile station, to "get away" from radio-forbidden locations. Operate a portable station from a campground, motel room, picnic area, mountaintop or other location. Handle interference from your station to nearby consumer electronics devices as well as to your station from other nearby devices. Use this book and enjoy operating from just about anywhere! **HRO Price $14.95**

APRS Tracks, Maps and Mobiles
A Guide to the Automatic Position Reporting System
By Stan Horzepa, WA1LOU

Experience the fastest growing Amateur Radio mode! With the help of this hands-on guide, you will learn how to use APRS to track anything that moves. Install and configure the latest APRS software. Learn how to add objects to APRS maps. Covers hardware installation, navigating maps, tracking, sending and receiving messages and bulletins, direction finding, using the Internet for APRS. Includes the most complete summary of commands for all APRS versions! 224 pages. **HRO Price: $14.95**

ARRL's Low Power Communication –
The Art and Science of QRP
by Richard Arland, K7SZ

The low power game is one of ham radio's most exciting and rewarding challenges. Here's the lowdown on low power operating, from selecting gear, to advanced operating techniques, antennas, emergency communications, solar power, and more! 208 pages. **HRO Price: $14.95**

CQ Books / Publications

ARC2001	Amateur Radio Calendar 2001
BAUBAU	Building & Using Baluns and Ununs
LMOA	Lew McCoy on Antennas
QUADANTENNAS	Quad Antennas
RCC2001	Radio Classics Calendar 2001
TPROM	The Packet Radio Ops Manual

ARTSCI

AMAT HB	Amateur Handbook
FA	Federal Frequency Book
LUM	Lost Users Manual
NASFG	Shortwave Guide
RTM	Guide to Radio Mods
RA	Radio Atlas
USRG	US Repeater Guide

RADIO Publications

ANTENNA HB	Antenna Handbook
BEAM	Beam Antenna Handbook
INTERFERENCE	Interference Handbook
QUAD	All About Cubical Quads
SHORTWAVE	Better Shortwave Reception
VERTICAL	All About Vertical Antennas
VHF	All About VHF Amateur Radio
WIRE	Low-Cost Wire Antennas
COMPLETE DX	Complete DX'er by W9KNI

Amateur Directories

Callbook

RAC-CD	National and International Callbook CD-ROM–See page 50

QRZ! Ham Radio CD-ROM

QRZ! Ham Radio's CR-ROM for DOS and Windows is the perfect information source for Hams and SW listeners. For details see page 50.

Magazines

73	73 Monthly Magazine
CQ	CQ Monthly Magazine
Popular	Popular Communications
QST	QST Monthly Magazine
MT	Monitoring Times
SCANNING USA	Scanning USA Magazine
WRN	World Radio News

Short Wave Listening

MT	Monitoring Times Monthly
PASSPORT	Passport to World Radio
WRTVH	World Radio TV Handbook

Rollman

NEW!

S.W. Frequency Directory 6th Edition
S.W. Frequency Directory Arizona
S.W. Frequency Directory Portland

Scanner Books

HRO stocks many books that contain scanner frequencies for localities around the country. Contact your nearest HRO store for details.

Study Aids

ARRL License Preparation

5-10 ARRL	5-10 WPM Code Tape
GENVIDEO/Soft	Gen Class Video / IBM Exam
TECHVIDEO/Soft	Tech Class Video / IBM Exam
NYT III	Study Guide for the No-Code Technician License
TAGCLM	General Class Manual
TAECLM	Extra Class Manual
TFRB	FCC Rule Book
YITMC	Introduction to Morse Code
TECH Q&A	Technician Q&A Study Guide

AMECO

12-01	General Class Test Manual
17-01	Extra Class Test Manual
78-01	Codeless Technician Manual

Gorden West / W5YI

GWT2	No Code Technician Manual
GWG3	General Class Study Manual
GWE4	Extra Class Study Manual
NCV	No-Code Video Seminar - Tech
NCVP	No-Code Video Seminar - Tech, manual, rule book
HCV	Gorden West Ham Class Video
GWTW	Technician Class Theory Tapes
GWGW	General Class Theory Tapes
GWEW	Extra Class Theory Tapes
TNP	New Question Pool: Tech, Gen, Extra

KB6MT

CODE	Code Training Tapes
IT-NCTECH	Instant Theory No Code Tech
IT-GEN	Instant Theory General
IT-EXTRA	Instant Theory Extra
WORDS	Code word course

Abtronix

ALFA&ZULU	Ride The Airwaves with Alfa & Zulu

Alpha Delta

NEW!

Basic Technology for the Amateur Radio Enthusiast

This is a combination video/book program. Even with all the videos and books out there, you've never seen anything like this! We went to "Hollywood" to produce and publish this terrific program.

It's for the non-technical person who is interested in ham radio, or the ham who memorized the test from a study guide, but who wants to know what's really going on behind the front panel. It's simple and straightforward and does not get into math or formulas. It's also great for those who are someone's "Elmer" or those involved in school programs. It does not compete with study guides for various license classes but, rather, makes a wonderful support program for them.

The video takes you on a tour of a receiver circuit board with a miniature "tour guide" and even shows how electrons flow to do the work. The book explains why ham radio is a fun hobby and talks about "hobbies within the hobby." It is also a wonderful non-technical reference for basic electronics, proper antenna operation, propagation and the history of communications. This combo video/book program was produced by our training director, who was training director for Motorola for many years. **HRO Price $39.95**

Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

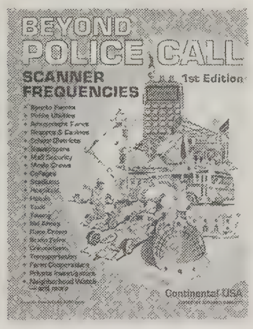
CLOCKS / CALENDARS

Scanner Books

Southwest Frequency Directory
6th Edition
Now Covering the Pacific Northwest!

NEW! Southwest Frequency Directory (6th Edition)

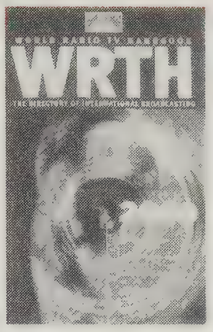
More than 400 pages of scanner frequencies, talkgroups, codes, and more for public safety, aircraft and businesses. Covers all of Arizona, Las Vegas, western Oregon, western Washington, metro Salt Lake City, and metro Denver. **HRO Price: $24.95**


BEYOND POLICE CALL
SCANNER FREQUENCIES
1st Edition
Continental USA

Beyond Police Call

Scanner frequencies for all those other uses: sports events, amusement parks, newspapers, mall security, movie crews, hospitals, taxis, conventions, farm cooperatives, private investigators, public utilities, hotels, and much more.
HRO Price: $9.95

Shortwave Books


WORLD RADIO TV HANDBOOK
WRTH
THE DIRECTORY OF INTERNATIONAL BROADCASTING

World Radio TV Handbook

Complete source-book for 1000+ English broadcasts. Stations listed by country and frequency. Pages of advice, tips, Internet addresses. 2000 edition. **HRO Price: $24.95**

Passport to World Band Radio
World's #1 Selling Shortwave Guide!

Passport to World Band Radio

News and shows from 160 countries. Reviews and advice on how to get started listening to international radio. 2001 edition. **HRO Price: $19.95**

Call HRO for More SWL & Scanner Books.

Calendars

CQ Calendars for 2001

Radio Classics Calendar
15 Month 2001/2002 Calendar

Radio Classics
RCC2001

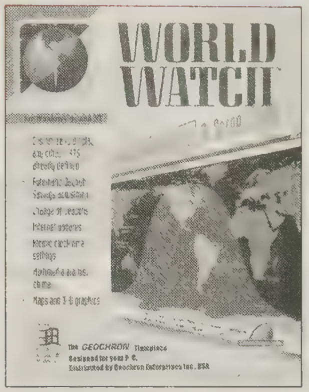
Amateur Radio
ARC2001

GEOCHRON

Computer Clock

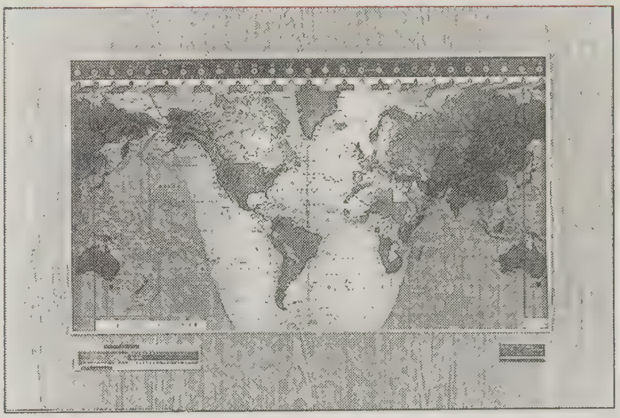
World Watch™ & Screen Saver

HRO Price $49.95


WORLD WATCH
The GEOCHRON Timepiece

Keep time with the world! With Geochron's World Time Piece for Windows, you will see "real time" displayed for your selected locations around the world. You have the option to enter your own city names or to select from more than 500 pre-programmed cities. World Watch illuminates those areas of the world currently experiencing daylight. Individual digital clocks continually display and update local time for the locations selected. International Daylight Savings Time adjusts automatically. Requires MSDOS 3.1 or later, MS Windows 3.1 or later. Windows 95 compatible. 386SX or higher microprocessor, 2MB memory (4 MB recommended), 1 MB disk space. Supports all Microsoft Windows Video systems.

Wall Clock



Kilburg GEOCHRON

Global Time Indicator

A "must item" for a First Class Ham Shack.

Size: 34" x 22" x 5"

Suggested List Price: $1495.95 – Call for HRO Special

Geochron is a true global time indicator. At any moment, Geochron displays the correct time everywhere in the world – the week, date, the sun's declination and distribution of daylight and darkness on the earth's surface.

Geochron is available in four (4) models and a multitude of housing finishes and trim colors. Packaged for "drop shipment" anywhere in the world via UPS or DHL. Geochron can be surface mounted on the wall like a picture or recessed using optional mounting brackets.
Call HRO for special pricing opportunities.

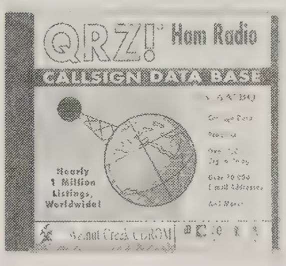
Radio Amateur
Call Book
Winter 2001

Radio Amateur Callbook CD-ROM 2001

HRO Price
$49.95

This is the most extensive radio amateur directory on the market. Incorporating both the North American and International editions of the world's most respected callbooks, it provides more than 1.6 million listings in more then 250 countries, islands, and dependencies. By including several countries not found in other directories, the Callbook offers unmatched world coverage.

- Windows / DOS platform.
- Data display by callsign, last name, city, license class, issue, and expiration dates.
- Search U.S. stations by callsign, last name, and city.
- Search international by callsign, last name, city. Text search by name, street, city, province, or region after selecting country.
- Unique sound output of Morse code alphabet can be used by the blind or anyone who wants to learn Morse code.
- Windows clipboard tool for single label or applications. Import data into logging spread sheet, word processor, or label printing program. Logging program interface available.
- Listings of clubs, "Then and Now" call letter changes, military, and silent keys.
- Text files listing prefixes by countries (40 zones), DXCC countries list, census of amateur prefixes, QSL bureaus, reciprocal operating agreements, 10-meter beacons. 6-meter beacons, international "Q" signals, and much more.



QRZ! Ham Radio CD-ROM

HRO Price $19.95

Ham radio and short wave enthusiasts can use the QRZ callsign data base with several ham radio logbook utilities that support QRZ. Also on the CD-ROM: the complete text to FCC approved license examinations, questions and answers, current rules and regulations, and 100's of shareware utilities.

Of particular interest is the new QRZWIN call sign search-and-retrieval software that allows easy access to more than 600,000 names and addresses of US and Canadian hams. The full name, address and FCC license information is included with each record. QRZWIN provides editing and printing functions which make custom mailing lists easy. Import the information to your favorite word processor for advanced formatting and list processing. QRZ features an open database with documentation so users can create their own custom applications. For use with Windows 3.1, Windows 95, or DOS software.

BUCKMASTER

HamCall
folio
April, 1998
BUCKMASTER

HamCall

HRO Price $50.00

Buckmaster provides easy access to information about all those other Hams out there around the world. This international database has convenient search modes and allows you to print out mailing lables in your choice of format.

- Menu-driven; all information available through the main menu.
- New U.S. and international searching capabilities by class, name, street address, city, state/province, postal code, county, and country.
- Complete U.S. and extensive international listings. More than 1,500,000 call signs, including clubs, military, RACES, silent keys, and vanity calls.
- More than 103,000 new and updated listings worldwide.
- Data displayed for U.S. hams: callsign, class, name, address, license issue date, license expiration date, birth date (more than 678,000 birthdates still in database), previous call, previous class, latitude, longitude, grid square, county, time zone, area code, e-mail address, QSL manager, beam heading, distance, www URL, and more than 3,500 photos (list included).
- International data generally includes callsign, name, address, and latitude/longitude based on city or town for greater precision.
- Prints standard 1-up labels for QSL cards, or print all information for each ham. Enhanced label printing capabilities for Windows. Pick the printer and font. Label size, margins, colums, and rows are fully configurable.
- Calculates beam heading and distance from your home QTH to each call you look up automatically. Distance is expressed in miles and kilometers.
- Improved ICALL setup routine with uninstall option.
- Edit information, change addresses, add records, delete old, add e-mail addresses, phone and FAX numbers.
- Requires IBM or compatible PC, DOS 3.1 or later, CD-ROM drive, 640k RAM. Photo display requires VGA adapter, SVGA recommended. DOS, Windows 95/98 supported. Y2K compatible.

artsci BOOKS

Reference

Amateur Handbook

This book is a mini Amateur library! Contains charts, tables, construction plans for all areas of amateur radio. Never look through all your other books again for that piece of information. It's here! **HRO Price $14.95**

U.S. Repeater Map Book

The PERFECT traveling companion for the radio enthusiast. Road maps show major highways and cities in every state. Amateur radio repeater frequencies are included. This is a must for truckers and travelers. Maps are enhanced to provide greater highway detail. **HRO Price $9.95**

Technical

Guides to Technical Radio Modifications & Alignment Controls

Easy to follow instructions (with detailed drawings) to enhance almost all brands of amateur HT's and mobiles. Includes extended frequency plans. **Volume A** (Icom, Kenwood, Scanners), **Volume B** (Alinco, Standard, Yaesu, others) **HRO Price $19.95 each**

Lost Users Manuals

Lost the manual to your radio? Bought a used rig with no manual? Lost Users Manual has operating instructions on most popular VHF & UHF radios: Alinco, Icom, Kenwood, Yaesu, Uniden. **HRO Price $19.95**

Shortwave

North American Shortwave Frequency Guide

A comprehensive by frequency list of all HF broadcasts by every country (worldwide) and service that can be heard in North America. **HRO Price $19.95**

Scanning

Federal Assignments

Ever wonder what the federal government agencies are up to? Listen in! This book, third edition, lists secret frequencies used by our government. This is the most comprehensive book we know of. **HRO Price $24.95**

Police & Fire Communications Handbook

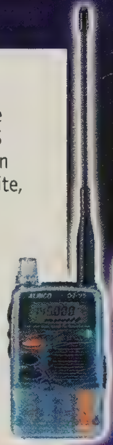
With the ever changing police frequencies in Southern California, it's time an accurate, up-to-date scanner book was available. More than 380 pages of frequencies, inputs & tones. **HRO Price $19.95**

ALINCO 2001

Alinco proudly introduces several innovative new radios! Check out the DR-135T, DJ-196T, DJ-496T and the DJ-X2T pocket receiver. Alinco's Toyama facility is **ISO 9002** certified. With Alinco, you get solid engineering, superb quality and affordable prices. That's why we're known as Amateur Radio's Value Leader™!

DJ-V5TH 2m/440 HT* NEW!

NEW! Extended Rx from 76 ~ 999 MHz† includes wide band FM, alphanumeric display, 200 Memories, CTCSS encode+decode, 5 watts output, compact size, 4 scan modes, 5 scan banks, split-band operation for satellite, auto-dialer, 13.8 VDC direct input and more!



DJ-V5TDC(H) 2m/440 HT NEW!

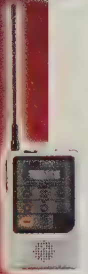
NEW! See-through version includes all the same great features of DJ-V5TH. With a clear ice blue case, the whole panel is illuminated in low light conditions for great night and emergency use. DJ-V5TDC is powered by a see-through dry-cell pack while the DJ-V5TDCH comes with additional NiCd battery pack and charger.

DJ-196T (2m), DJ-496T (440 MHz) HT NEW!

NEW! Backlit keypad, alphanumeric display, 40 memories, CTCSS encode+decode, DCS, auto-dialer, burglar alarm, 13.8 VDC direct input, experimental mosquito repel tone! Comes with high power battery.

DJ-180TH (144 MHz)*, DJ-280TH (222 MHz)*, DJ-480T (440 MHz)

Proven performers, super value! 10 memories expandable to 50 or 200, illuminated display, CTCSS encode+decode.



DJ-C5T 2m/440 "Credit Card" HT

"Credit Card" size, internal speaker, 50 memories, CTCSS encode+decode, AM airband RX, 300 mw output, soft case, 600 mAh lithium-ion battery, charger included!

DJ-S11T (144 MHz) HT
DJ-S41T (440 MHz) HT

"Pager size", 21 memories, easy to operate and program, great TX and RX audio, self-storing pivot antenna, uses AA batteries, 340 mw output, fits in pocket or purse. Amazing low price! Mobile DC cable and speaker mics also available.

DJ-G5TH 2m+440 HT*

Our most popular dual-bander, up to 5 watts output, Channel Scope™ display, 100 memories/band, CTCSS encode+decode, AM airband RX, programmable second PTT, full duplex and crossband repeater capabilities, 13.8 VDC direct input, illuminated keys and display, RF attenuator and more!

***Optional 2 watt batteries available.**

DR-M03SX (10m/10 watts)
DR-M06TH (6m/20 watts)
FM Mobile/Base

Local and DX FM communications can be yours! Great for simplex or repeater operations, includes CTCSS encode (decode optional), 100 memories.

DR-135T/TG, DR-135TP/TPG NEW!
2m FM Mobile/Base

NEW! 2 meter TX/RX + Airband (AM) RX. Ignition key power control, theft alarm, narrow band FM, 7 place alphanumeric display, front panel data input, **optional internal packet module can be used with APRS™**, true 9600 packet mode operation, rear panel DSUB9 connection. 5/10/50 watt power settings, 100 memories, 10 autodial memories, CTCSS and DCS encode/decode, backlit mic, and more! **Available in black (T, TP) or pewter (TG, TPG).**

DR-150TQ (CTCSS decode)
2m FM Mobile/Base

Channel Scope™ display, remote control and frequency entry capability from multi-function mic keypad, 50 watts, 100 memories, airband + 440 ~ 450 MHz RX, 2 VFOs, auto-dialer, 9600 packet port, CTCSS. For demanding 2m FM operators.

DR-605TQ (CTCSS decode)
2m/440 Mobile/Base

Value Leader! 50 watts VHF/35 watts UHF, 51 memories/band, 430 ~ 449.995 MHz range allows for satellite work, crossband repeater operation, 9600 packet port. Check the super low price! Dual band, dual RX.

DR-610TQ (CTCSS decode)
2m/440 Mobile/Base

Detachable face, 50 watts VHF/35 watts UHF, Channel Scope™ display, 120 memories, 2 VFOs, AM airband RX, V/U, V/V, U/U, U/V operation, RF attenuator, CTCSS, more! Direct frequency and remote control capability from multi-function mic keypad. Crossband repeat and DTMF command control.

DX-70TH (100w) HF+6m
Mobile/Base/Portable

160 ~ 6m Amateur band TX in all modes, removable face, general coverage RX from 150 KHz ~ 30 MHz and 50 ~ 54 MHz. 2 VFOs, 100 memories, speech compressor, SSB, CW and AM narrow filters, full, semi or automatic break-in, multi-function control, and MUCH more! Ask about optional EDX-1 or EDX-2 antenna tuners.

DX-77T HF Base/Portable

160 ~ 10m Amateur band TX in all modes. Clean, crisp RF modulation, easy to operate! Low noise floor from DDS. 500 KHz ~ 30 MHz general coverage RX, 2 VFOs, internal keyer (6 ~ 50 wpm), 100 memories, 13.8 VDC input, speech compressor, CTCSS encode for 10M operation, CW filter standard. Compatible with EDX-1 or EDX-2 antenna tuners.

Simple ▪ Clean ▪ Dependable

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ASK YOUR DEALER ABOUT ALINCO'S EXTENDED WARRANTY!

Raising The Standard for Toughness
Solid As A Rock
VFO
145.000
BUSY/TX
DIAL
Actual Size

Yaesu's FT-1500M represents a technological breakthrough in radio transceiver design! New advances in power amplifier technology combine to provide you with 50 Watts of clean transmit power with enhanced current consumption efficiency. Yaesu's patent pending aluminum die-cast shell construction dissipates heat throughout the entire transceiver chassis and eliminates the need for a cooling fan. This allows the FT-1500 to fit in an incredibly small case size: less than 5 inches square X 1.4 inches high and offer superior operating specifications as well!

FT-1500M

50 W 2-m FM Mobile Transceiver

YAESU

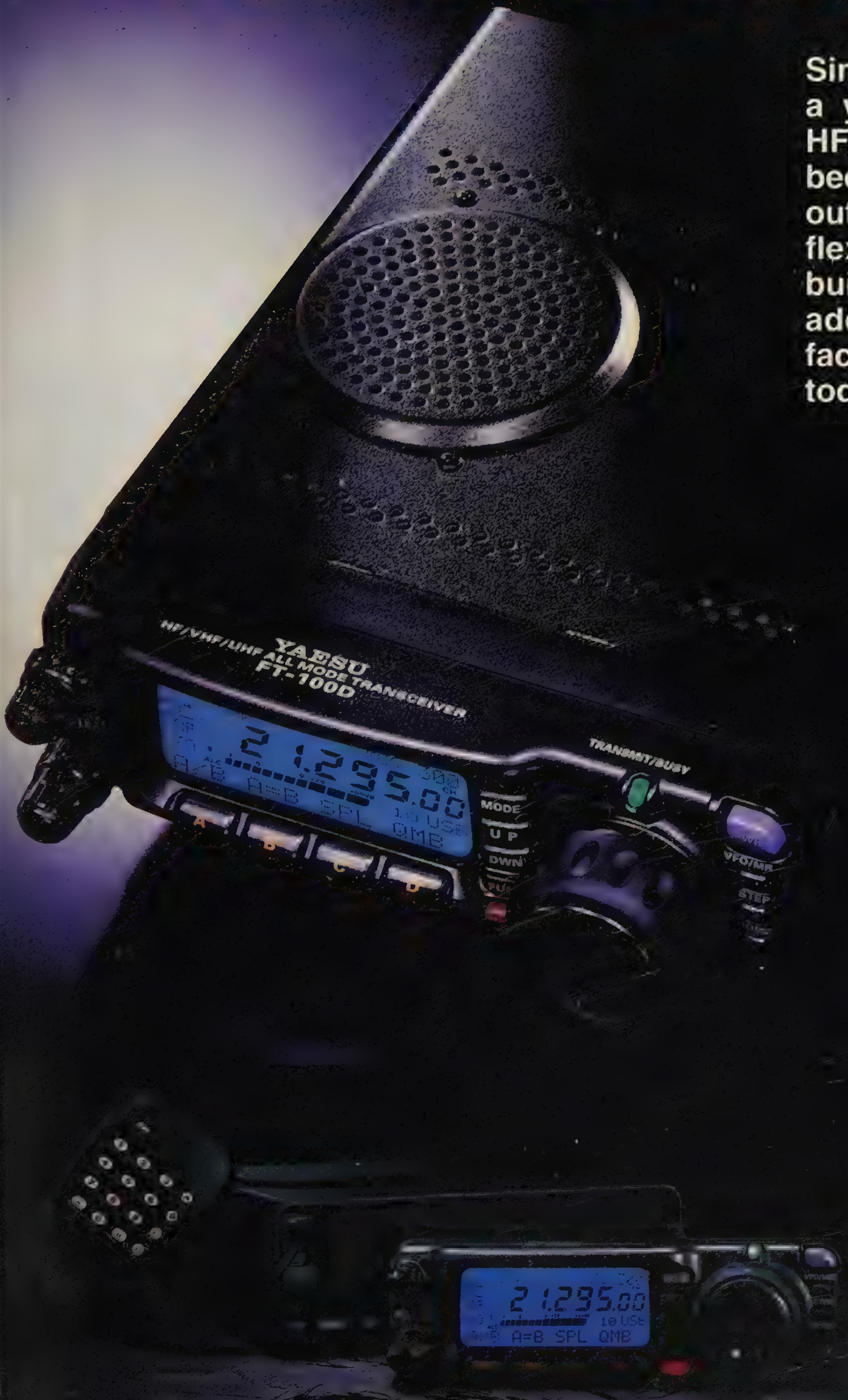
Choice of the World's top DX'ers℠

©2000Yaesu USA, 17210 Edwards Road,Cerritos, CA 90703. (562) 404-2700

Specifications subject to change without notice. Specifications guaranteed only within Amateur bands.Some accessories and/or options are standard in certain areas. Check with your local Yaesu dealer for specific details.

For the latest news, hottest products:
Visit us on the Internet! http://www.yaesu.com

MOBILE DX MASTER



Since its introduction over a year ago, Yaesu's FT-100 HF/VHF/UHF Transceiver has been widely acclaimed for its outstanding performance and flexibility. Now the FT-100D builds on this success story, adding the convenience of factory-installed modules for today's Ham on the go!

FT-100D HIGHLIGHTS

The FT-100D is a high-performance, ultra-compact transceiver operating on the 160-10 meter HF bands, plus the 50, 144, and 430 MHz VHF/UHF bands. Known for its outstanding receiver performance, the FT-100D's easy-to-access DSP system is the cornerstone of the outstanding receiver capability. Providing Noise Reduction, Auto-Notch, and Narrow-Bandwidth Filter selection, the DSP system also includes a Microphone Equalizer for the transmit side.

ϕ

The new and enlarged speaker of the FT-100D (66 mm) provides spectacularly clean audio output, to help you dig out those weak signals.

Whether at home or away, the fantastic new FT-100D is The Choice of the World's Top DX'ers. Step up to the FT-100D, and enjoy the thrill of the sunspot peak in style!

MICRO MOBILE

FT-100D

Ultra-Compact HF/VHF/UHF Transceiver

YAESU

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MR 439.700
NFM
FM TRANSCEIVER VX-5
YAESU

VX-150
Compact yet incredibly rugged 2-meter handheld is designed to perform under the most difficult operating conditions. And it's packed with the leading-edge features you've come to expect from a Yaesu product. Five Watt power-output, 209 memories, DCS/CTCSS, 7 digit alphanumeric display, automatic repeater shift and much more.

FT-50RD
This durable, multi-featured 5 Watt Dual Bander is manufactured to rigid MIL-810 standards. Featuring wideband frequency coverage,* CTCSS/DCS operation, Dual Watch, 112 memory channels, and Digital Voice Storage.

FT23RMKII/FT33R
These ultra-compact, 5 Watt VHF FM Handhelds feature rugged die-cast aluminum cases, 10 memory channels, optional CTCSS, and multiple scan modes. The FT23RMKII (2M) and the FT-33R (222 MHz) are easy to operate, and give outstanding performance.

VX-110
This incredibly rugged 5 Watt VHF handheld features 209 memories, Smart Search,™ DCS/CTCSS, simple 8 key operation and Omni Glow™ display illumination for night time operation.

FT411MKII
The affordable FT411MKII is compact and durable. This 5 Watt VHF FM Handheld features a die-cast case, 40 memory channels, 10 DTMF memories, built-in VOX, and multiple scan modes.

VX-1R
The pocket-sized VX-1R is small in size only. Featuring Smart Search,™ DCS/CTCSS, Dual Watch, ARTS,™ wide-band coverage (76–999* MHz plus AM BC). The VX-1R provides 291 memory channels, and puts out ½ Watt (1 Watt w/optional E-DC-15 DC Adapter).

* Cellular Blocked

VR-500
This miniature Handheld Receiver provides FM, AM, SSB and CW reception on 100 kHz–1300 MHz, with 1091 memory channels, Smart Search,™ versatile Dot Matrix display, Band Scope, and Dual Watch.

VX-5R
Although Yaesu's newest Tri-Band Handheld Transceiver is the world's smallest, it offers the performance of a full-size unit. The VX-5R operates on the 50 MHz, 144 MHz and 430 MHz bands with 5 Watts of power output, along with ultra-wide receive coverage of the VHF and UHF spectrum, plus AM medium- and short-wave broadcast reception. The VX-5R is military rated, so its durable, lightweight design allows you to take it anywhere. It is equally suited to walking through the concrete jungle as it is to forging the raging rivers of a real one. Along with a temperature display, the optional barometer pressure sensor unit gives a read-out of barometric pressure and altitude.

TOUGH GUYS.

When you're small, you get picked on. Isn't that how it goes? Well not in Yaesu territory, because not only do we design compact handhelds for efficiency, but we give these clever little guys plenty of muscle. Yaesu handheld transceivers have earned the bragging rights for being the smallest handhelds with the most durable water resistant casings ever created. And packed inside the brawn are engineering accomplishments in performance that are unmatched in the industry. Our high-tech handheld transceivers provide clean power output on the VHF and UHF bands and offer revolutionary features that allows these tough guys to continually outperform the competition. Learn more about Yaesu products on the web at www.yaesu.com

YAESU ...leading the way.

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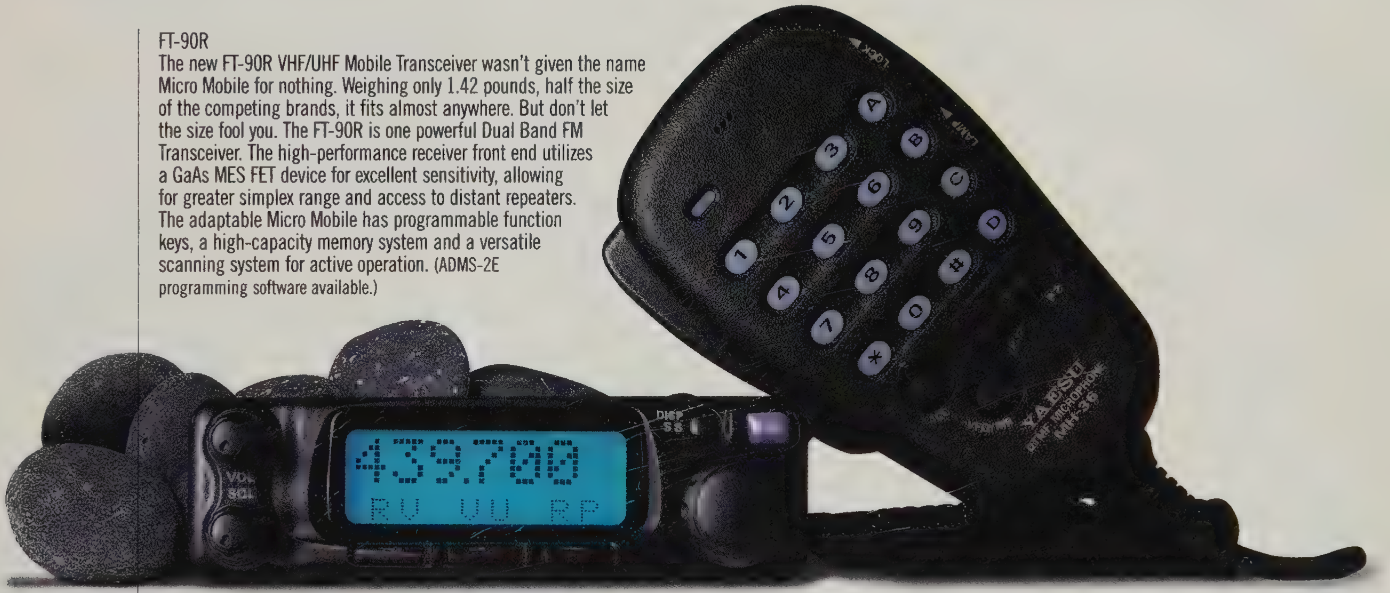
FT-8100R
The versatile FT-8100R Dual Band Mobile offers rugged RF design, 50 Watt (VHF)/35 Watt (UHF) power output, 310 memory channels, Dual Receive (VV/UU/VU), Enhanced Smart Search,™ CTCSS Encode, and a TX Time-Out Timer. (ADMS-2D programming software available.)

FT-100
This ultra-compact HF/VHF/UHF 100W Transceiver provides SSB, CW, AM, FM and AFSK coverage of the HF, 6M, 2M and 70 CM bands. Features include 300 memory channels, built-in Electronic Memory Keyer, DSP, IF Shift, IF Noise Blanker, and CTCSS/DCS.

FT-3000M
This 70W high-powered 2M FM Mobile provides extended UHF receiver coverage, AM Aircraft RX, and is MIL-STD approved. The FT-3000M features 81 memory channels, Smart Search,™ CTCSS/DCS and is 1200/9600 Baud Packet compatible. (ADMS-2D programming software available.)

FT-1500M
Yaesu's FT-1500 2M FM Mobile, a masterpiece of RF and mechanical engineering, is a trend-setting blend of compactness and functionality. Excellent receiver performance, direct keypad frequency entry, Alpha-Numeric Memory system, and 50 Watts of output power are just the start. Easy to install, program, and operate, the FT-1500M is a space-age wonder at a down-to-earth price.

FT-2600M
This heavy-duty VHF FM Mobile is encased in a durable aluminum die-cast chassis/heatsink assembly, and manufactured to MIL-STD 810 requirements. Features include 60 Watt power output, 179 memory channels, direct keypad frequency entry from microphone, Alphanumeric memories, and PC programming capability with optional ADMS-2E software.



FT-90R
The new FT-90R VHF/UHF Mobile Transceiver wasn't given the name Micro Mobile for nothing. Weighing only 1.42 pounds, half the size of the competing brands, it fits almost anywhere. But don't let the size fool you. The FT-90R is one powerful Dual Band FM Transceiver. The high-performance receiver front end utilizes a GaAs MES FET device for excellent sensitivity, allowing for greater simplex range and access to distant repeaters. The adaptable Micro Mobile has programmable function keys, a high-capacity memory system and a versatile scanning system for active operation. (ADMS-2E programming software available.)

LITTLE BIG MOUTH.

Life is an adventure. So whether you're on expedition or vacation, you will probably encounter some rough going along the way. And when you do, you'll be glad that your mobile transceiver is a Yaesu. With units small enough to install almost anywhere and rugged enough to achieve military approval for shock and vibration, Yaesu is the obvious choice for dependability. Its exceptionally clear signal and wide dynamic range tame even the most crowded bands, and provide outstanding protection from intermodulation in urban areas. Learn more about Yaesu products on the web at www.yaesu.com

YAESU ...leading the way.

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- Specifically designed for high drain devices like ham radios, GPS, and family radios.
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- Recharge 500 to 1000 times.

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- Rapid charge AA & AAA NiMH / NiCD batteries in about 3 hours.
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- Universal drop-in design to accommodate various battery packs.
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Also available in teeny weeny version.
ICF-SW07

The Sony ICF-SW07 World Band Radio™ holds nearly 3000 frequencies in memory, and is still small enough to take anywhere. Its replaceable EEP Rom Chip is preprogrammed with the world's top stations. And each year Sony will offer an updated chip for less than twenty dollars. You can also preset up to 100 of your favorite stations with the "My Memory" button. And tuning is easier than ever. So listen to the world from anywhere in yours, and leave the satellite dish at home.

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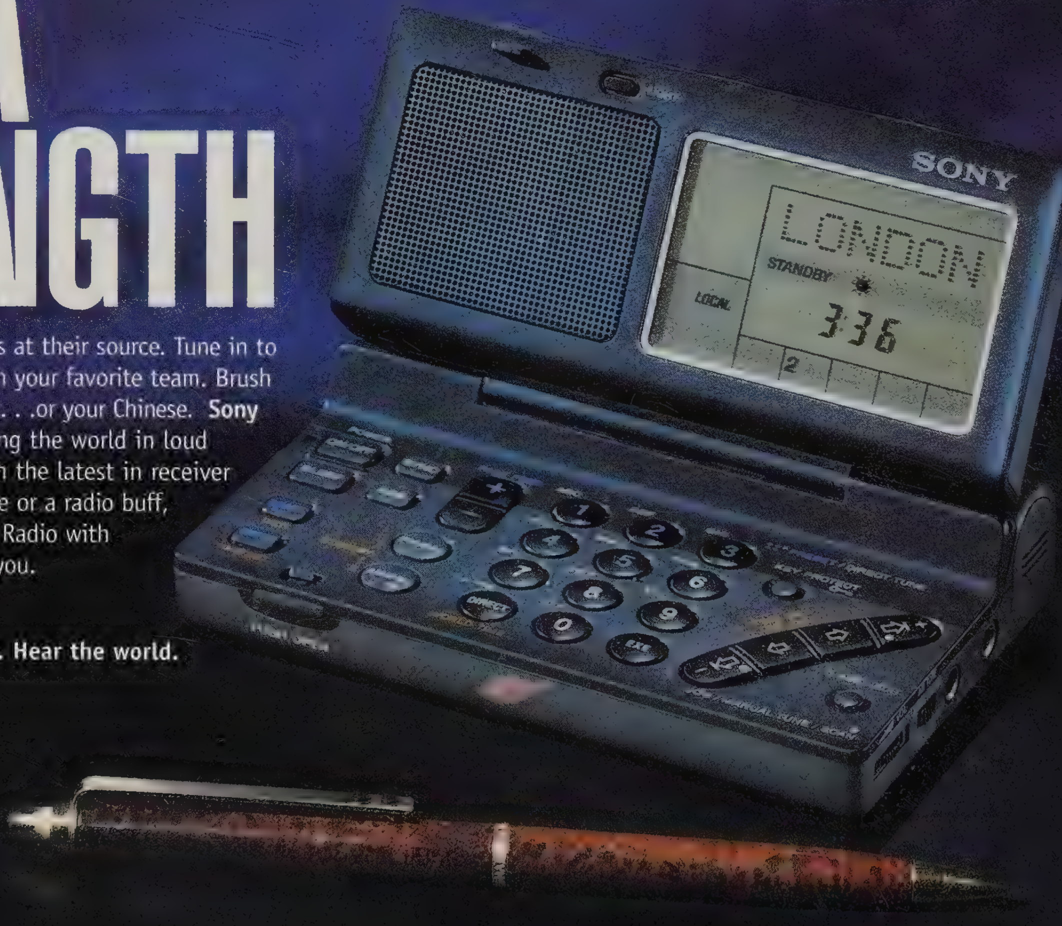

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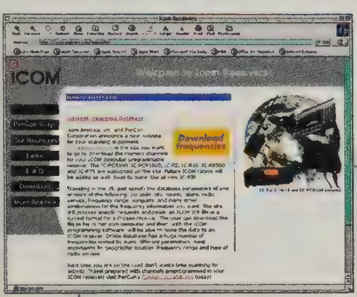
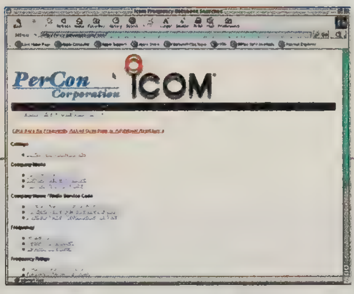
1



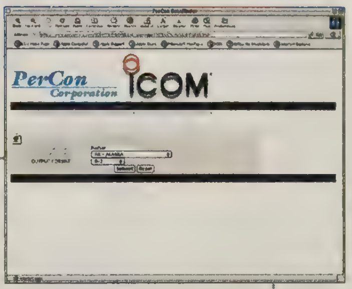
Log-on to www.icomreceivers.com
>click on Download Frequencies

2



Select and Click on the Appropriate Catagory. Choose from Frequency Range, Radio Service, Geographic Radius, and more!

3



Fill in the City, or State, or Frequency, and select which radio you're using.
>click Submit

>Here's what you need:

- *ICOM Programming software & cable*

quick > free > easy

4

Results of your search are put into a file which you download onto your hard drive. Use this to program your ICOM receiever.

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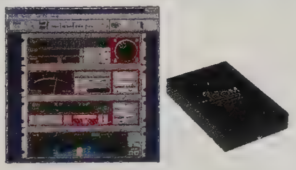
Pull out the weak signals *30 kHz - 60.0 MHz†*



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The original "black box" is still best *100 kHz – 1.3 GHz†*

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Coming Soon! *500 kHz – 2.45 GHz†*

IC-R8500
The experts choice *100 kHz - 2.0 GHz†*

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Much like its big brother, but for less *100 kHz – 1.3 GHz†*

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Excellent audio, tiny package
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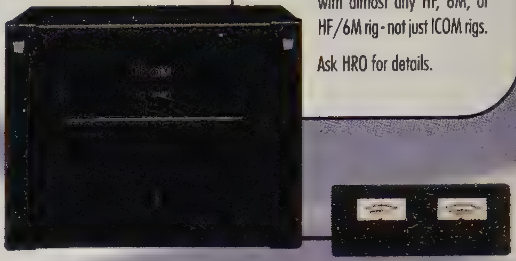
*IC-R3 is not supported yet.**This device has not been approved by the FCC. This device may not be sold or leased, or offered for sale or lease, until approval of the FCC has been obtained. †Cellular frequencies blocked; unblocked versions available to FCC approved users. ©2000 ICOM America, Inc. 2380 116th Ave NE, Bellevue, WA 425-454-8155. The ICOM logo is a registered trademark of ICOM, Inc. All specifications are subject to change without notice or obligation. RCVRHR0700

There's something magical about amateur radio. The fact that you can speak into a little box and communicate with someone else on the other side of town, or even on the other side of the world, with nothing between you and that person but thin air...what an incredible, powerful feeling. It feels like magic.



IC-PW1

Great for Contesting and DX'peditions

Give your desktop station 1kW of power. Remote control head, 100% duty cycle, compact size. Can be used with almost any HF, 6M, or HF/6M rig - not just ICOM rigs.

Ask HRO for details.

WORK THE MAGIC

IC-718

Perfect for beginners - advanced performance at a start-up price

- 100W (AM 40W)
- All Mode
- 500 kHz–30.0 MHz Receiver
- IF Shift
- Auto Tuning Step
- Direct Frequency Input
- DSP Capable with Optional UT-106
- Large Backlit LCD Display
- Internal CW Keyer
- VOX
- Compact Size
- PC Programmable*

IC-746

Advanced HF performance w/6M & 2M

- 100W
- All Mode
- Full Duty Cycle
- Quad Conversion Receiver
- IF-DSP
- Front Panel Adjustable NR
- Audio Peak Filter
- Auto Notch Filter
- 3 Optional Filter Positions
- Twin Passband Tuning
- 4.9" LCD/Dot Matrix Display
- CW Memory Keyer
- VOX
- Auto Antenna Tuner
- PC Controllable*

Most ICOM rigs are PC programmable with select ICOM options

PC Ready!

IC-756PRO

This new HF/6M rig pushes digital to new levels! With 32 bit IF-DSP

- 100W
- 32 Bit IF-DSP
- All Mode
- Triple Conversion Rx
- Dual Watch
- Front Panel Adjustable NR
- 51 User Selectable Filters
- Auto & Manual Notch Filter
- Twin Passband Tuning
- 5" TFT Color Display
- CW Memory Keyer
- VOX
- Auto Antenna Tuner
- PC Controllable*

IC-775DSP

Pull out the weak signals!

- 200W
- All Mode
- IF-DSP with Noise Reduction, Auto and Manual Notch, Audio Peak Filter, and Twin Passband Tuning
- Adjustable Noise Blanker
- Dual Watch
- Adjustable AGC
- CW Keyer
- Auto Antenna Tuner
- VOX
- CTCSS Encoder
- Internal Power Supply
- PC Controllable*

IC-781

The Ultimate Ham Rig

- All Mode, 150W
- Features all the Bells and Whistles
- Built-in Power Supply
- Twin PBT
- Adjustable AGC
- CRT Display with Band Scope
- PC Controllable*

IC-W32A

Advanced dual bander

- 2M/440MHz
- 5W@9.6VDC
- 200 Memories
- Alphanumeric Display & Paging
- V/V, V/U, U/V, U/U
- Backlit Keypad
- Wide Rx†

IC-Q7A

Super small size, big sound

- 2M/440MHz
- Mini Size
- Big Audio
- 30 to 1300 MHz Rx† (Cell Blocked)
- Advanced Scanning
- Includes "AA" Ni-Cds, Charger
- Work One Band at a Time

All ICOM HTs meet

SHOCK
MIL STD
810 C/D/E
VIBRATION

IC-T22A

Shirt pocket small, big performance

- 2 Meters
- Easy to Use
- Alphanumeric Display
- Wide Rx ,Air Band†
- 5W@13.5V DC*
- 3W@9.6V DC Standard
- 80 Memory Channels

IC-T81A

World's First QUAD Band HT

- Easy to Use
- 6M/2M/440MHz/1.2GHz
- Wide Band Rx†
- 5W@13.5VDC*, 1W/1.2 GHz
- Ni-Mh Battery
- Auto Repeater
- Water Resistant

IC-T2H

Police radio rugged

- 2 Meters
- Super Rugged
- 6W @ 9.6V DC
- 500 mW Audio
- 8 Front Panel PC Programmable* Keys
- 2 AA Ni-Cds & Wall Charger Included
- Our most affordable

IC-2100H

Rugged 2 Meter, large controls

- 55 Watts
- Easy to Use
- Full Function Mic
- IMD Fighter
- MIL SPEC 810††
- Large Green/Amber LCD
- Large Keys and Knobs

IC-706MKIIG

The most versatile series of compact, multi-band rigs ever made

- HF/6M/2M/440MHz
- 100W on HF, 100W on 6M, 50W on 2M, 20W on 440 MHz
- AF-DSP
- Plug and play filters - no soldering
- Easy-to-navigate menus
- Auto repeater
- CTCSS encode/decode
- Backlit keys

IC-T7H

Powerful performance

- 2M/440 MHz
- Easy to Use
- Up to 6 Watts
- Work One Band at a Time
- Air Band Rx†
- Pocket Beep
- Auto Repeater

IC-2800H

Audio excellence and video excitement

- 2M/440MHz
- 3" (d) TFT Color LCD Screen
- NTSC External Video Input
- WFM & AM (Rx Only), FM
- 50W/2M, 35W/70CM
- 9600 bps Packet Data Port
- V/U, U/V, Dual Band, Cross Band Repeat
- Independent Band Controls
- Air Band Rx†

IC-207H

Super compact,
Detachable Control Panel*

- 2M/440MHz
- 2M(45W)/440 MHz(35W)
- Work One Band at a Time
- Up to 9600 bps Packet*
- Air Band RX†
- MIL STD 810††

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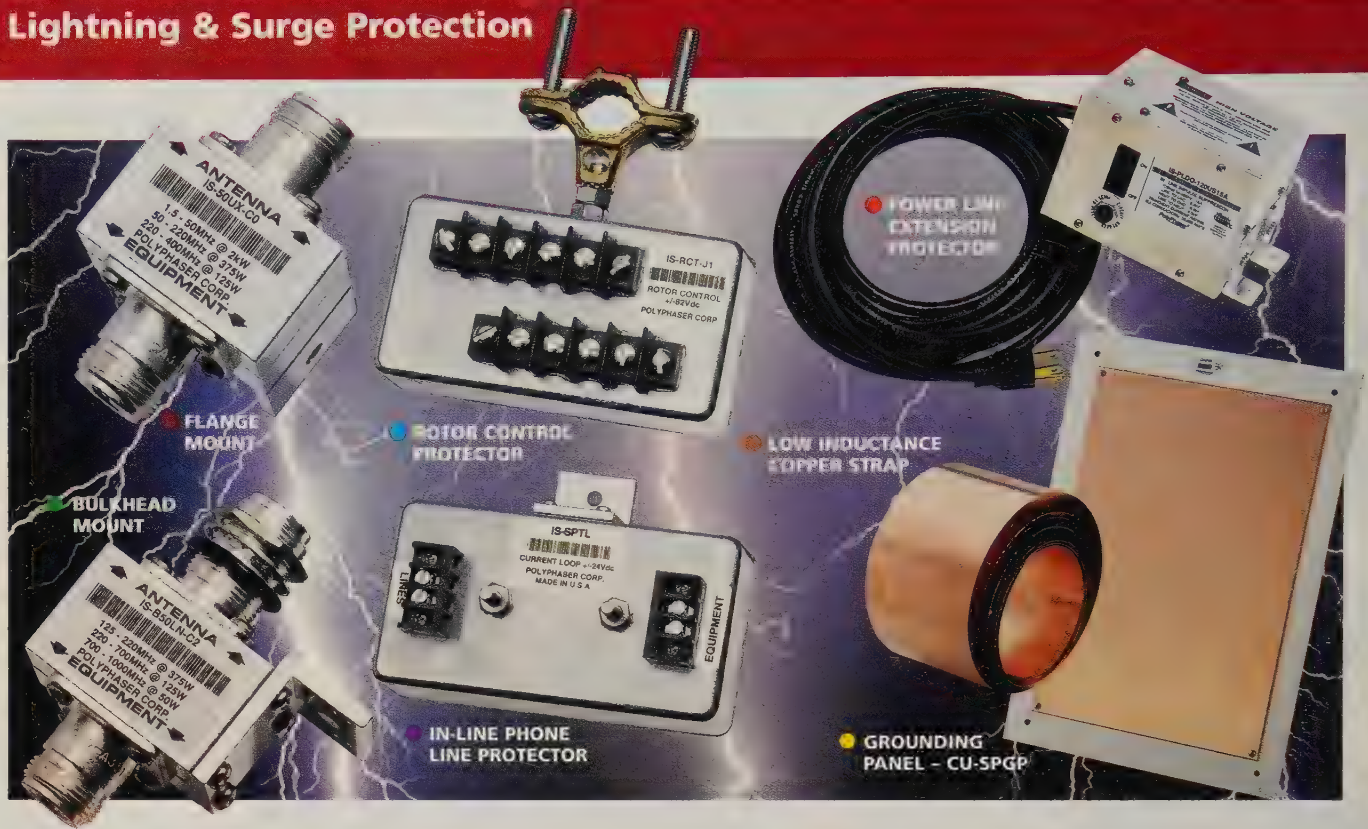
ptional equipment required. †Reception guaranteed on US ham bands only. ††MIL STD 810 C/D/E for shock/vibration. ©2000 ICOM America, Inc. 2380 116th Ave NE, Bellevue, WA 98004, 425-454-8155. The ICOM logo is a registered demark of ICOM, Inc. All specifications are subject to change without notice or obligation. AMPREADHR0700

Lightning & Surge Protection


● FLANGE MOUNT
● ROTOR CONTROL PROTECTOR
● POWER LINE EXTENSION PROTECTOR
● LOW INDUCTANCE COPPER STRAP
● BULKHEAD MOUNT
● IN-LINE PHONE LINE PROTECTOR
● GROUNDING PANEL – CU-SPGP

PolyPhaser Corporation's coaxial impulse suppressors are a unique line of patented products. Hermetically-sealed voltage sensitive gas tubes are used with additional components to assure that surge voltages and currents formed differentially on the coax are not conducted to the equipment input. There is no dc continuity from center pin to center pin on our dc blocked protectors.

Other gas tube protectors have dc continuity through their centerpins and share the energy with the equipment before the gas tube turns on. *Quarter wave stub protectors* are also dc coupled devices. There is dc continutiy between their center pins and the equipment input.

A PolyPhaser dc blocked protector only lets through our rated specification (low milli-, or microjoules). Peak voltage let-through is also significantly less than dc continuity protectors. PolyPhaser's measured let-through energy and voltage is the industry's lowest.

- Multi-strike capability with low-strike throughput energy
- Aluminum enclosure
- VSWR: 1.1 over its frequency range

● FLANGE MOUNT

IS-50UX-C0 Frequency Range: 1.5MHz to 400MHz; Max. Power: HF 2kW, VHF 375W, UHF 125W

IS-50UX-C1 Frequency Range: 50MHz to 700MHz; Max. Power: VHF 375W, UHF 125W

IS-50NX-C2 Frequency Range: 125MHz to 1000MHz; Max. Power: VHF 375W, UHF (low) 125W, 800MHz to 1GHz 50W. Type N connectors

● BULKHEAD MOUNT

IS-B50LU-C0 Frequency Range: 1.5MHz to 400MHz; Max. Power: HF 2kW, VHF 375W, UHF 125W

IS-B50LU-C1 Frequency Range: 50MHz to 700MHz; Max. Power: VHF 375W, UHF 125W

IS-B50LN-C2 Frequency Range: 125MHz to 1000MHz; Max.Power: VHF 375W, UHF (low) 125W, 800MHz to 1GHz 50W. Type N connectors

● ROTOR CONTROL PROTECTOR

IS-RCT Provides protection for rotor controllers, motors, control box and other nearby equipment. EMP rated faster than other gas tubes with mounting stud. 7.5"h x 3.25"w x 2.5"d.

● IN-LINE PHONE LINE PROTECTOR

IS-SPTL Multi-stage protection, with large bandwidth and fast response time. EMP rated. For telephone trunk lines — handles standard ring voltages to 105Vrms. Handles surges up to 36kA.

● POWER LINE EXTENSION PROTECTOR

In-line, multi-stage EMP rated protectors provide multi-strike power line protection, filtering, and proper grounding when equipment use requires an extension cord. Two outlets, master on/off switch, circuit breaker for added protection. All aluminum-grounded enclosure. 4.25" wide.

IS-PLDO-120-15A 15' cord, 120V @ 15A

IS-PLDO-120-20A 6' cord, 120V @ 20A

● GROUNDING PANEL

CU-SPGP A .062" thick copper plate mounted on a painted 1/2" plywood backing. Mounting protectors & a single ground point established for station equipment. Comes with concrete anchors, all mounting screws, 10' of 1.5" copper grounding strap, 2 brass sandwich plates, and joint compound. 18"w x 12"h; 16"d center mount.

● LOW INDUCTANCE COPPER STRAP

Copper strap has an advantage over wire when used for grounds, as it has lower inductance, and cannot be fused open by lightning. For example: 1.25" strap has a lower inductance than #2.0 stranded wire. It's easy to cut, solder, etc. Usable above or in-ground applications. 26 AWG thickness (0.0159"). Available in 1.5, 3 & 6 inch widths, and 25, 50, 75 or 100 foot rolls.

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GRUNDIG Best in Technology

Yacht Boy 400 Professional Edition (YB 400PE)

The most powerful compact Radio AM/FM Shortwave Receiver.

"The Best compact shortwave portable we have tested"
Lawrence Magne–Editor in Chief, Passport to World Band Radio

The Big Breakthrough! Power, performance, and design have reached new heights! The Grundig 400 Professional Edition with its sleek titanium look is packed with features like no other compact radio in the world.

Pinpoint Accuracy! The Grundig 400PE does it all: pulls in AM, FM, FM-Stereo, every shortwave band (even aviation and ship-to-shore)–all with lock-on digital precision.

Ultimate Features! Auto tuning! The Grundig 400PE has auto tuning on shortwave and stops at every signal and lets you listen. With the exceptional sensitivity of the 400PE, you can use the auto tune to catch even the weakest of signals.

Incredible timing features! The Grundig 400PE can send you to sleep listening to your favorite music. You can set the alarm to wake up to music or the morning traffic report, then switch to BBC shortwave for the world news. The choice is yours!

Powerful Memory! Described as a smart radio with 40 memory positions, the Grundig 400PE remembers your favorites–even if you don't!

Never Before Value! Includes deluxe travel pouch, stereo earphones, owner's manual, external antenna and a 9 volt Grundig AC adapter. Uses 6 AA batteries (not included)

Style • Titanium look

Shortwave, AM and FM • Continuous shortwave from 1.6 - 30 MHz, covering all existing shortwave bands plus FM-stereo, AM and Longwave. • Single sideband (SSB) circuitry allows for reception of two-way communication such as amateur radio, military, commercial, air-to-ground, and ship-to-shore.

Memory Positions • 40 randomly programmable memory positions allow for quick access to favorite stations.

Multi-function Liquid Crystal Display • The LCD simultaneously displays the time, frequency, band, alarm and sleep timer.

Clock, Alarm and Timer • Two alarm modes: Beeper and radio. • Dual clocks show time in 24 hour format. • Sleep timer programmable in 15 minute increments.

Dimensions:	7.75" L X 4.5" H X 1.5" W
Weight:	1 lb. 5 oz.

GRUNDIG
YB 400PE
40 STATION MEMORIES

Power and Performance with the Affordable Yacht Boy 300 Professional.

Designed for the traveller, the titanium look digital radio provides incredible power and performance for an incredibly low price! Packed with features, this radio is an excellent value, accompanied with 3 AA batteries, AC adapter, earphones, supplementary Antenna and carrying case!

State-of-the-art features include:

- Digital tuning with 24 user-programmable memory presets
- 13 SW Bands (2.30-7.80 MHz; 9.10-26.10 MHz)
- Illuminated multifunction LCD display screen
- AM/FM stereo via earphones
- Clock, alarm and 10 to 90 minute sleep timer
- Digital tuning display
- Direct frequency entry
- DX/ local selector
- Titanium look finish
- External antenna jack
- Dynamic micro speaker
- Earphone jack
- Telescopic antenna

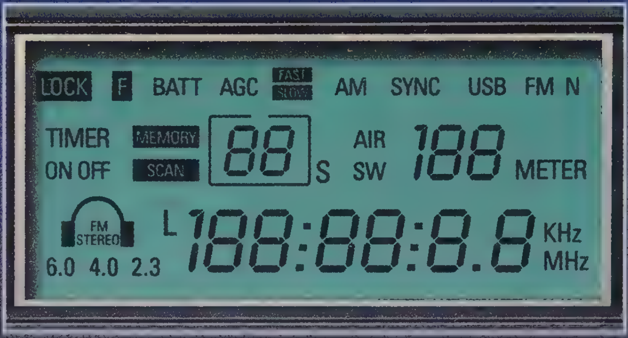
Dimensions:	5.75" L X 3.5" H X 1.25" W
Weight:	9.92 oz

GRUNDIG
YB 300PE
PASSPORT

by GRUNDIG

Lextronix / Grundig, P.O. Box 2307, Menlo Park, CA 94026 • Tel: 650-361-1611 • Fax: 650-361-1724
Shortwave Hotlines: (US) 1-800-872-2228 (CN) 1-800-637-1648 • Web: www.grundigradio.com • Email: grundig@ix.netcom.com

GRUNDIG The Ultimate in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AGC
FAST
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MEMORY
SCAN
88
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AIR
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188
METER
FM STEREO
L
188:88:8.8
KHz
MHz
6.0 4.0 2.3

The LCD
Big! Bold! Brightly Illuminated 6" by 3½". Liquid Crystal Display shows all important data: Frequency, Meter band, Memory position, Time, LSB/USB, Synchronous Detector and more.

SIGNAL STRENGTH
1 3 5 7 9 10 20 30 40 50 60
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DECIBELS
SATELLIT 800
MILLENNIUM

The Signal Strength Meter
Elegant in its traditional Analog design, like the gauges in the world's finest sports cars. Large. Well Lit. Easy to read.

The Frequency Coverage
Longwave, AM and shortwave: continuous 100-30,000 KHz. FM: 87-108 MHz VHF Aircraft Band: 118-137 MHz.

The Tuning Controls

- For the traditionalist: a smooth, precise tuning knob, produces no audio muting during use.

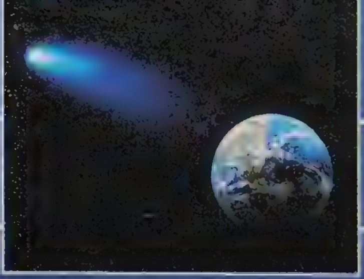
TUNING
MEMO
VFO
SW BAND
SCAN

Ultra fine-tuning of 50Hz on LSB/USB, 100Hz in SW, AM and Aircraft Band and 20 KHz in FM.

- For Fixed-step Tuning: Big, responsive Up/Down tuning buttons.
- For direct frequency entry: a responsive, intuitive numeric keypad.

THESE ARE THE SATELLIT 800 MILLENNIUM'S MAJOR FEATURES.
FOR A DETAILED SPECIFICATION SHEET, CONTACT GRUNDIG.

GRUNDIG
POWER
CLOCK
TIMER
LAMP



Digital Technology

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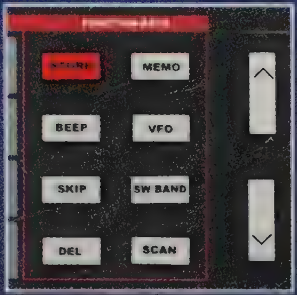
CLK LOCK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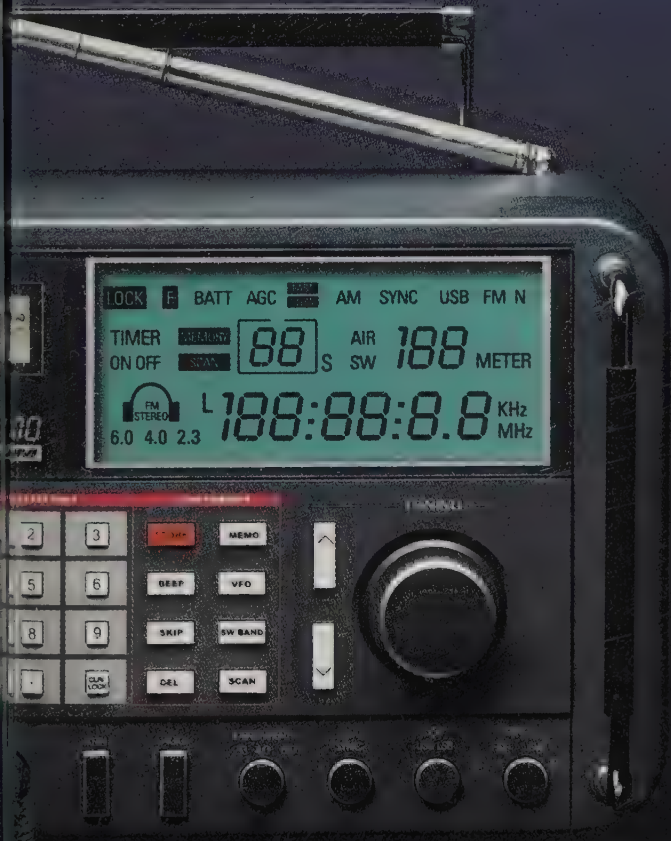
SKIP
SW BAND
DEL
SCAN

The Operational Controls
Knobs where you want them; Buttons where they make sense. The best combination of traditional and high-tech controls.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6.0 4.0 2.3
KHz
MHz
MEMO
BEEP
VFO
SKIP
SW BAND
DEL
SCAN
TUNING

The Sound
Legendary Grundig Audio Fidelity with separate bass and treble controls, big sound from its powerful speaker and FM-stereo with the included high quality headphones.

The Technology
Today's latest engineering:

- Dual conversion superheterodyne circuitry.
- PLL synthesized tuner.

The Many Features

- 70 user-programmable memories.
- Two, 24 hour format clocks.
- Two ON/OFF sleep timers.
- Massive, built-in telescopic antenna.
- Connectors for external antennas – SW, AM, FM and VHF Aircraft Band.
- Line-out, headphone and external speaker jacks.

The Power Supply
A multi voltage (110, 220V) AC adapter is included. Also operates on 6 size D batteries. (not included)

Dimensions: 20.5" L × 9" H × 8" W

Weight: 14.50 lbs.

by GRUNDIG

Lextronix / Grundig, P.O. Box 2307, Menlo Park, CA 94026 • Tel: 650-361-1611 • Fax: 650-361-1724
Shortwave Hotlines: (US) 1-800-872-2228 (CN) 1-800-637-1648 • Web: www.grundigradio.net

G-FORCE
TM-G707 180
The "G" Stands for Great Value!
FREE
Operating Manuals and Brochures via the FTP site*
TH-G71A / TM-G707A

If great value is what you are looking for in a new dual-band handheld or mobile, look no further. The Kenwood TH-G71A and TM-G707A have what you need. The moment you pick up the TH-G71A you will realize the tremendous quality it offers! The polycarbonate case, large one-piece heat sink, high quality antenna and connector, help make it exceed high MIL-SPECS for shock, dust and water. The large, easy to read and "understand" keypad, makes the TH-G71A the handheld of choice.

The TM-G707A mobile offers the highest quality also, with a one piece die-cast heat-sink, the world's smallest detachable front panel for difficult mounting situations and the largest, easy to read character display available anywhere. Of course each of these models offer built-in CTCSS en-code/de-code, 200 total memory frequencies on the 144/440 MHz bands, FREE PC programming software and complete operators manual over the internet. Oh, and let's not forget the best customer support in the industry to help both new and old Hams alike.

Experience *The G-Force;* because the *"G"* stands for *GREAT* value!

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AMATEUR RADIO PRODUCTS GROUP
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Customer Support: (310) 639-5300 Fax: (310) 537-8235
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INTERNET
Kenwood Website
http://www.kenwood.net
Kenwood Information
*ftp//ftp.kenwood.net

We Build Legends

TS-520 1973
TS-570DG TODAY
FREE Operating Manuals and Brochures via the FTP site*

TS-570DG - The Best Selling HF Radios, Then and Now!

Back in 1973, Kenwood introduced the first affordable HF radio to the world, the legendary TS-520. Today 27 years later, the Kenwood TS-570DG HF and the TS-570SG with 6 Meters are by far the most popular HF and HF+6 transceivers on the market. The truth is that Kenwood has built and sold more HF Amateur radios than any other RF product manufacturer…ever! In 27 years, there have been several advancements in Amateur radio: solid state circuits, digital displays for quicker and more accurate tuning, built-in tuner, and Digital Signal Processing (DSP) for cleaner signals unheard of with the TS-520. Ask any experienced Ham which HF radios have the best audio…the answer has always been Kenwood! Whether a CW contester, DX chaser, or a new upgraded General Class Amateur, Kenwood has an HF radio for you. Don't be fooled by big boxes, high price tags, complex operation, and broken promises of performance.

Time marches on and your friends at Kenwood continue to build outstanding products with unparalleled performance and great value. It's not too late to own an "HF Legend," because we are still building them today.

TS-50S Compact Mobile

TS-870S 100% Digital IF DSP

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COMMUNICATIONS CORPORATION

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Customer Support: (310) 639-5300 Fax: (310) 537-8235
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ISO9001 certification

INTERNET
Kenwood Website
http://www.kenwood.net
Kenwood Information
*ftp//ftp.kenwood.net

DYNAMIC DIGITAL DUO
FREE
Operating Manuals and Brochures via the FTP site*
Messaging
Location
TH-D7A(G) / TM-D700A

Throughout the years, Kenwood has engineered many significant feature and hardware advancements that earned us the nickname "Pacesetter in Amateur Radio". Kenwood continues to show this leadership in advanced design and technology with the TH-D7A(G) handheld and the TM-D700A mobile dual-banders. Not only do our radios perform all the functions of any other radio, but you can also explore the exciting digital world of APRS™, which has become the fastest growing and most dynamic part of the hobby. Most Disaster Communication organizations use APRS™. Identifying someone's location with APRS™ can save a life.

The TH-D7A(G) and the TM-D700A are the only radios ever produced that have both built-in TNC and APRS™ operating software, allowing you to send and receive exact GPS positions. You can even send text messages over 144.390 MHz, an international APRS™ frequency. Position reports and two-way messaging can also be achieved over the Internet, across the country or around the world. Street level mapping can also be employed using a PC, palm device or GPS. And yes, the TM-D700A is great for receiving satellite packet!

Venture into the future of Ham radio today and experience Kenwood's "Dynamic Digital Duo". They may just be the excitement and enjoyment you have been waiting for!

KENWOOD
COMMUNICATIONS CORPORATION

AMATEUR RADIO PRODUCTS GROUP
3975 Johns Creek Court, Suwanee, GA 30024
P.O. Box 22745, Long Beach, CA 90801-5745, U.S.A.
Customer Support: (310) 639-5300 Fax: (310) 537-8235
Y2ARD-2036 #092300

ISO 9001
JQA-1205
Communications Equipment Division
Kenwood Corporation
ISO9001 certification

INTERNET
Kenwood Website
http://www.kenwood.net
Kenwood Information
*ftp//ftp kenwood.net

TS-2000
Then There Was Light...
World's 1st HF Backlit Front Key Panel
...The All New TS-2000 All Band/All Mode Transceiver
Coming Soon!

Never before has an Amateur radio product provided such high performance and versatility. The **TS-2000** is in a class by itself and will no doubt become the most desired All band/All mode Amateur transceiver ever produced. With Amsat's Phase 3D soon on the horizon, Amateurs everywhere will be looking to the sky to experiment with this exciting breakthrough in our hobby. Kenwood's new **TS-2000** offers full functions on all HF bands as well as 6 meters. This is just the right equipment you'll need for making quick contacts. You'll discover it's dependable performance combined with easy operation will provide Ham operators a level of enjoyment impossible until now. VHF/UHF 144/440/1200 MHz operation is also available on the main band. Additionally, the sub-band offers 144/440 MHz operations for satellite TX/RX.

The **TS-2000** also offers the following features that you could be missing on your current All-band/All mode transceiver: True IF-Stage DPS with 100% digital filtering; built-in auto antenna tuner; the world's first HF backlit front key panel; 5 antenna ports; transverter ready; 9-pin db connector for easy PC interface; built-in TNC; DX packet cluster monitoring with direct go-to function for HF and 6 meter openings; CW auto-tune...to name just a few.

Not only does the **TS-2000** provide the most features and performance of any All band/All mode transceiver but it delivers exciting versatility by offering a traditional station radio or mobile head/no controls (black box) unit. It also can be operated by the ARCP computer control program to take control of most functions direct from your PC.

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P.O. Box 22745, Long Beach, CA 90801-5745, U.S.A.
Customer Support: (310) 639-5300 Fax: (310) 537-8235
Y2ARD-2034 #092800

These devices have not been approved by the Federal Communications Commission. These devices are not, and may not be, offered for sale or lease, or sold or leased until the approval of the FCC has been obtained.

INTERNET
Kenwood Website
http://www.kenwood.net
Kenwood Information
ftp//ftp.kenwood.net

Low cost, low loss flexible LMR® cable!

for HF through Satellite Bands

	Diameter in Inches	Jacket Material	Shielding (dB)	*Attenuation (dB/100')			
				30 MHz	146 MHz	440 MHz	2.4 GHz
LMR® 900	**.870**	**Black PE**	**90**	**.29**	**.65**	**1.2**	**2.9**
LMR® 600	**.590**	**Black PE**	**90**	**.42**	**.95**	**1.7**	**4.3**
LMR® 400	**.405**	**Black PE**	**90**	**0.7**	**1.5**	**2.7**	**6.6**
Air Dielectric 9913	.405	PVC	90	0.8	1.5	2.8	7.5
9914	.403	PVC	90	1.0	2.1	3.8	8.7
RG-214	.425	PVC-IIA	60	1.2	2.8	5.1	13.7
RG-213	.405	PVC-IIA	40	1.2	2.8	5.1	13.7
LMR® 240	**.240**	**Black PE**	**90**	**1.3**	**3.0**	**5.2**	**12.7**
RG-8/X	.242	PVC	40	2.0	4.5	8.1	21.6
LMR® 200	**.195**	**Black PE**	**90**	**1.8**	**3.9**	**6.9**	**16.5**
LMR® 195	**.195**	**Black PE**	**90**	**2.0**	**4.4**	**7.7**	**18.6**
RG-58	.195	PVC-IIA	40	2.5	6.1	10.4	35.0
LMR® 100A	**.105**	**Black PVC**	**90**	**3.9**	**8.8**	**15.6**	**38.9**
RG-174	.110	PVC-IIA	40	5.5	13.0	25.0	75.0

LMR features: Watertight foam polyethylene dielectric • Non-kinking • EZ install connectors

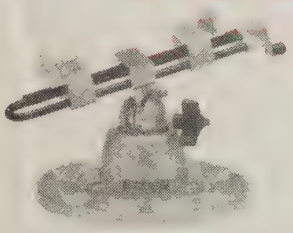
*Use calculator at www.timesmicrowave.com for loss at any frequency

TIMES MICROWAVE SYSTEMS
A Smiths Industries company

ISO 9001

Vises

PANAVISE

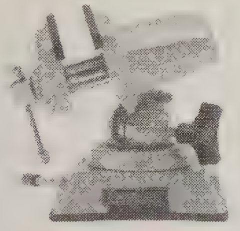


Chassis

Model 375

HRO Price $39.95

The specially created 345 Grooved Aluminum Chassis Jaws open a full 13" and hold chassis gently yet firmly for quick work at home. The 300 Standard Base provides the tilt, turn and rotate. Includes a set of 347 Extra Wide Opening Jaws.



Vacuum Base

Model 381

HRO Price $54.95

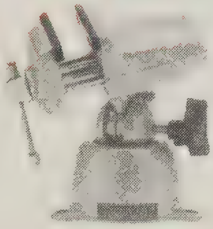
The 381 Vacuum Base PanaVIse is a combination of the 380 Vacuum Base and the 303 Standard Head. This combination provides the tilt, rotate and turn versatility with the convenience of added portability. A half turn of the mount lever attaches or releases the powerful suction pad.

Wide Opening Head

Model 396

HRO Price $45.99

The versatility of the PanaVise product line is evident in this combination. It features the 366 Wide Opening Head with the 300 Standard Base. This wide head has full tilt, turn and rotate capabilities of the split ball.



Standard

Model 301

HRO Price $42.95

This all-purpose work holding unit is perfect for both industrial and home hobbyist applications. A single knob controls the tilt, turn and rotate function allowing the head to move easily through three planes. Features the 300 base, 303 Standard Head and 343 Nylon Jaws.

NEW!

ClipCaddy

HRO Price $9.95

The ClipCaddy® by Panavise holds anything with a belt clip. It adheres to any smooth surface. Application is limited only by your imagination. Contains one ClipCaddy, screws for attaching to AMPS mounts, two button styles, self-adhesive strips and alcohol wipe,

Soldering Equipment

Weller®

8200

Solder Gun

HRO Price $39.95

100/140W, 110 V. Ready to solder in 6 seconds. Finger tip selection of high/low power. Great for soldering coax connectors.

D650

Solder Gun

HRO Price $59.95

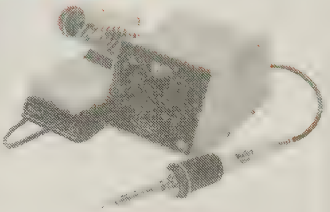
Solder gun, 200/300 watts. Great for soldering coax connectors outside.

RC60V

Lead-free Rosin Core Solder

HRO Price $3.99

13 feet, 0.04 inches in diameter, active rosin core, lead free. In an easy to use dispenser tube.



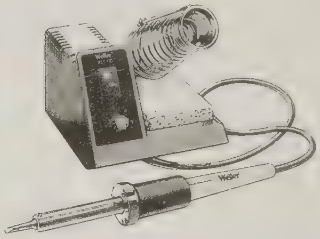
WTCPT

Soldering Station

HRO Price $119.95

Weller offers a soldering station that is a must for every ham shack.

- Transformer powered with macro style, low voltage, temperature controlled soldering iron.
- Special "closed loop" method of controlling maximum tip temperature.
- Power unit housing features impact resistant plastic.
- Quick disconnect plug for iron and lighted on / off switch.
- Separate conductor grounds iron tip and terminates at third pin of power cord.
- Uses PT series tips and operates at 600°F, 700°F and 800°F.

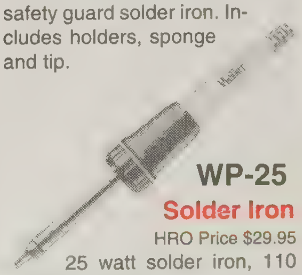


WLC-100

Solder Station

HRO Price $44.95

40 watt solder station, 110 volts. Adjustable 5-40 watts with safety guard solder iron. Includes holders, sponge and tip.



WP-25

Solder Iron

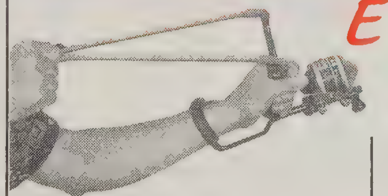
HRO Price $29.95

25 watt solder iron, 110 volts. Light weight handle with cushioned grip.

Line Thrower

E Z HANG

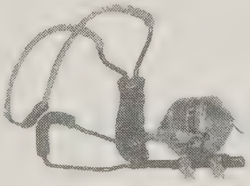
HRO Price 49.95



EZ HANG can be used to "throw" a line up to 100 feet over a tree or other object. Cable pullers can use EZ HANG to "throw" a line through a dropped-ceiling/plenum and avoid using long pull-rods. It cuts installation time and your cost dramatically.

EZ HANG's basic construction is steel attached to a reel that is corrosive resistant plastic and stainless steel. The reel comes with 300 feet of 10-pound-test monofilament line installed, a quick-disconnect clip to release the weight and an easy-to-see "bright yellow" one-ounce lead weight.

Note: This is a "slingshot" device. Before ordering, please check your local laws with respect to possession and/or use of a slingshot.



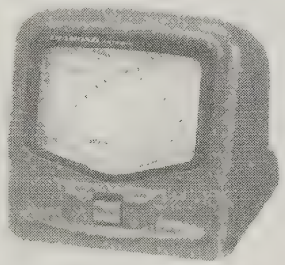
SWR / WATT METERS

DIAMOND

SX-1000

Diamond RF SWR / Watt meters cover the complete range of amateur applications.

- Illuminated meters.
- Require 12 volts DC.
- Low insertion loss generally less than 0.2 dB in HF range and 0.3 dB at higher frequencies.
- Power measurement accuracy is generally ±10% on the higher power ranges and ±5% on the lower ranges.
- Some have remote sensors for power pick-up.
- Low loss SO-239 connectors are used except for the high frequencies as noted in the table.
- Measurements are forward power, reflected power, SWR &, on selected frequencies, PEP monitor.



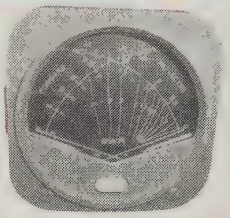
SX-40C

The SX-20C and SX-40C are the latest meters from Diamond. The SX-40C can be used on 220MHz with a correction factor.

Diamond SWR / Watt Meters

Model	Freq MHZ	Power Ranges	Con-nector	HRO Price
SX-20C	3.5-30 50-54 130-150	30/ 300 W	SO-239	$89.95
SX-40C	144-470	15/ 150 W	SO-239	$79.95
SX-100	1.6-60	30/ 300/ 3KW	SO-239	$129.95
SX-200	1.8-200	5/ 20/ 200 W	SO-239	$89.95
SX-400	140-525	5/ 20/ 200 W	SO-239	$109.95
SX-600	1.8-160 140-525	5/ 20/ 200 W	SO-239	$159.95
SX-1000	1.8-160 430-450 800-930 1230-1300	5/ 20/ 200 W	SO-239 Type N Type N Type N	$199.95

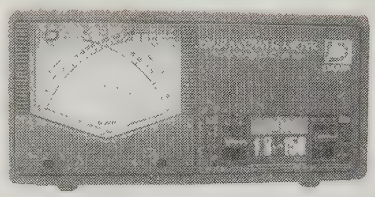
DAIWA



CN-460M

- Compact
- Cross Needle Meter
- Mobile/Base Use

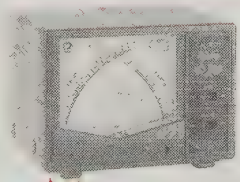
	CN-410M	CN-460M	CN-465M
Frequency	3.5-150 MHz	140-450 MHz	140-450 MHz
Power Range	15-150 W	15-150 W	15-150 W
Power Rating	150 W	150 W	150 W
SWR Detection	3 W minimum	3 W minimum	3 W minimum
HRO Prices	$119.95	$119.95	$119.95



CN-101

- Large cross needle meter
- Forward / reverse read simultaneously
- PEP monitor function

	CN-101
Frequency	1.8 - 150 MHz
Power Range	15 /150 / 1.5 KW
Power Rating	1.5 KW (1.8-60 MHz) 1 KW (144 MHz)
SWR Detection	4 W minimum
HRO Price	$99.95



CN-801 Professional Series

- Cross Needle Meter
- Extra Large Display

NEW!

	CN-801H	CN-801V	CN-801S
Frequency	1.8-200 MHz	140-525 MHz	900-2500 MHz
Power Range FWD	20/200/2k W	20/200 W	2/20W
Impedance	50W	50W	50W
Connectors	SO-239	SO-239	N-Type
SWR Detection	5 W minimum	5 W minimum	0.5 W minimum
HRO Prices	$129.95	$149.95	$229.95

HF Digital Watt Meters

RF Applications

RF Applications watt meters have a VSWR alarm that will drop out an amplifier under high VSWR conditions.

P-3000

A remote coupler design with a power rating of 15 to 2950 watts and a VSWR from 1.0:1 to 19:1. A 5 KW model is now available. **HRO Price $259.95**

P-2000A

Uses a combination of digital microprocessor technology and analog panel meters. Has an expanded VSWR scale and settable VSWR alarm. Covers 1.8 to 30 MHz up to 2000 watts. A 5kW model is also available Call for price. **HRO Price $289.95 2kW version**

NEW!

VFD and VFD5KW Wattmeters

The VFD wattmeters feature a 2 line by 16 character vacuum fluorescent display, tuning and operate modes, and a settable VSWR limit. Provide real time peak and hold display of your actual power and VSWR every time you transmit. The VFD's 65-element bargraph gives you a better resolution than a meter and you can select a quick update for the display power (Tune Mode). The VFD's sensor uses large cores that will not saturate, even above 1.5 kW. The VFD5KW handles up to 5 KW of power. This unit also features a settable alarm indication to let you know that your VSWR has exceeded a preset limit. As vanity options, the VSWR alarm relay option and a power monitor option are available directly from RF Applications at additional cost. **HRO Prices:**
VFD $239.95 VFD5KW $349.95

P-100A

Display and control functions are similar to the P-2000A. Uses coaxial line sections and sensor elements from Bird® or Coaxial Dynamics®. **HRO Price $239.95**

WATT METERS

BIRD

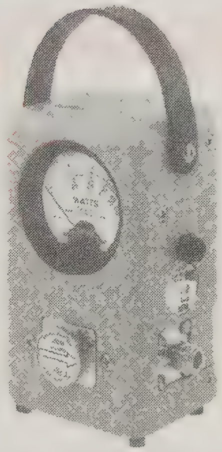
Model 43 Directional Wattmeter

This Thruline Directional Wattmeter has a history of reliability, durability and flexibility. It is a well engineered, portable insertion-type meter that measures forward and reflected CW power in coaxial transmission lines. It gives accurate RF power flow readings under any load conditions.

Model 43 has a line section and a direct-reading 3 scale meter in a rugged, corrosion-resistant aluminum case. Quick Change (QC) type connectors and a full range of plug-in measuring elements are available. (See the chart for the most popular elements. Others are available on special order.) Store two extra elements in the housing. The shock-mounted 30-microampere meter has 3 expanded scales of 25, 50 and 100 unit calibrations. It comes with type SO-239 QC connectors, but others are available. Please specify when you order.

PEP Modification Kit Model 4300-400

Upgrade your existing Bird 43 meter to a PEP reading meter. Order the 4300-400 modification kit. Easy installing procedures are included for most versions of the Model 43.



Model 43P Peak Reading Wattmeter

Model 43P is a peak-reading version of the popular Model 43. The peak reading option has been installed in one of the spare element holes on the side of the meter. The meter reads CW with the switch out and PEP when the switch is in. Requires a 9 VDC battery. The frequency range and power levels are determined by the element used. No special elements are required. The meter comes with SO-239 QC connectors installed. Others are available.

Accessories

The most popular watt-meter accessories are:

- CC-1 Meter case. Space for 6 elements.
- EC-1 Element case. Space for 12 elements.

Bird Standard Elements

Power	2-30 MHz	25-60 MHz	50-125 MHz	100-250 MHz	200-500 MHz	400-1000 MHz
5 watts		5A	5B	5C	5D	5E
10 watts		10A	10B	10C	10D	10E
25 watts		25A	25B	25C	25D	25E
50 watts	50H	50A	50B	50C	50D	50E
100 watts	100H	100A	100B	100C	100D	100E
250 watts	250H	250A	250B	250C	250D	250E
500 watts	500H	500A	500B	500C	500D	500E
1000 watts	1000H	1000A	1000B	1000C	1000D	1000E
2500 watts	2500H		2500B	2500C		
5000 watts	5000H					
10000 watts	10000H					

RF Detector

NCG

KC1-R
KC1-B
$15.95 Suggested List

When activated, the RF detector indicates near-by RF by lighting up. Specify RED (KC1-R) or BLUE (KC1-B).

POUCHES

Radio Protectors

The Pouch

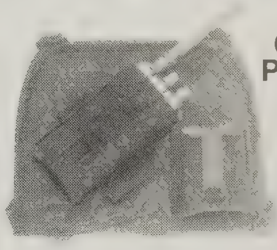
Secure Shock Absorber

New design water resistant carrying cases are made of bouncy, tough neoprene and nylon. A bungee type parachute cord restraining strap secures the HT. Has a durable quick-release clasp on a web belt loop.

Analyzer POUCH

Neoprene & nylon plus water-resistant padding protect your analyzer. Clear window over read-outs. Back-pocket for accessories. Adjustable shoulder strap included. Specify any model. **HRO Price $24.95**

Chest POUCH



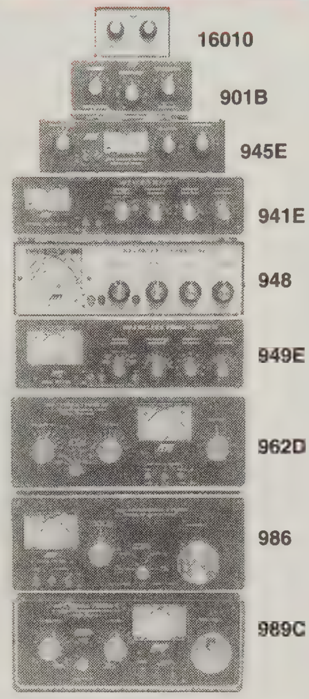
"Hands-free" security. Double-ply cordura "bib" with adjustable harness. Pouches for radio & spare battery. Pen holders and big pocket on back for accessories. Specify ANY radio or pouch. **HRO Price $25.95**

Make	Radio Model	Pouch Model	HRO Price
ADI	AT-201 / 401 / 600	T2A	$17.95
Alinco	DJ-G5T	32-5T	$14.95
	DJ-V5DC/V5TH	A5T	$14.95
	DJ-195T	95T	$14.95
	180/280TH/480T	A3T	$14.95
Icom	IC-Q7	S508-Q7	$12.95
	IC-R1	S508-Q7	$12.95
	IC-R3/R10	RC-3	$17.95
	IC-T2H	T2A	$17.95
	IC-T7A	P-5	$17.95
	IC-T8A	S510-T8	$14.95
	IC-T22A	P-5	$17.95
	IC-T81A	S510-T8	$14.95
	IC-W32A	32-5T	$14.95
Kenwood	TH-D7A	DTX	$17.95
	TH-22AT / 42AT	SS	$17.95
	G71A	G71	$17.95
	TH-79A 5.0 w	S1	$17.95
	TH-79A 2.7 w	S2	$17.95
	VC-H1	S2	$17.95
Yaesu	FT-23/33	23-33	$17.95
	FT-50RD	10R	$14.95
	FT-411MKII	2-411	$17.95
	VX-1R	1R	$12.95
	VX-5R	5R	$14.95

Questions?
Call a helpful Ham at HRO.

MFJ

HF Tuners



MFJ-16010 Random Wire Tuner for all bands anywhere. 1.8-30 MHz. Turn any random wire into a transmitting antenna. Also for apartment, motel, camping. 200 watts. *HRO Price $49.95*

MFJ-901B Versa Tuner, our smallest, most affordable 200 watt tuner is good for matching solid state rigs to linears within limited space and budget. 1.8-30 MHz, 4:1 balun. *HRO Price $69.95*

MFJ-903 Tuner/ Wattmeter for 6M 50-54MHz. *HRO Price $79.95*

MFJ-945E Mobile Tuner This mobile tuner extends antenna bandwidth and eliminates the need to stop, go outside to readjust your mobile whip. Cross-needle meter handles 300 watts. It reads forward / reflected power in 50 / 300 and 5 / 50 watt ranges. Has on / off lamp switch. *HRO Price $99.95*

MFJ-941E Versa Tuner II 300-watt tuner for 1.8-30 MHz. It has a lighted cross-needle meter and on/off switch. *HRO Price $109.95*

MFJ-948 like the 949E but without dummy load. Eggshell white. *HRO Price $119.95*

MFJ-949E Deluxe Versa Tuner II covers 1.8-30 MHz and handles 300 watts. Has built-in 50 ohm dummy load. Lighted peak reading cross-needle SWR / wattmeter reads forward / reflected power in 50 / 300 and 5 / 30 watt ranges. Front panel antenna switch selects 2 coax lines directly or through tuner, random wire / balanced line or dummy load. Efficient 12-position airwound inductor gives lower losses and more power out. Has 4:1 balun, 1000 volt capacitors. A black aluminum front panel matches your rig perfectly. *HRO Price $129.95*

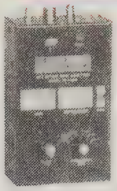
MFJ-962D Versa Tuner III for 1.8-30 MHz handles 1.5 kW PEP. Matches coax, random wire, or balanced line (built-in 4:1 balun). Six position antenna switch for 2 coax lines. *HRO Price $249.95*

MFJ-969 300 Watt Roller Inductor Tuner with AirCore™ roller inductor. Covers 6m throught 160m. Has lighted cross-needle meter, 8 position antenna switch, built-in dummy load, 4:1 balun. Tunes any antenna. *HRO Price $189.95*

MFJ-986 Differential-T Tuner™ for 1.8-30 MHz, at 3 kW PEP. T-network with AirCore™ roller inductor and differential capacitor. Peak reading cross-needle SWR / wattmeter for 200 / 50 and 2000 / 500 watt ranges. Roller inductor spinner knob, 3 digit counter. 6 position antenna switch. 4:1 balun. *HRO Price $299.95*

MFJ-989C Versa Tuner V heavy duty! Covers 1.8-30 MHz, 3 kW PEP, matches everything: coax fed, random wires and balanced lines. AirCore™Roller inductor with spinner knob and 3-digit counter. Peak reading cross-needle SWR / wattmeter 200 / 2000 watt ranges. 50 ohm, 300 watt dummy load, 4:1 balun, 6 position antenna switch, tilt flip stand. *HRO Price $319.95*

SWR Analyzers



MFJ-259B SWR Analyzer™ with RF Impedance Meter reads antenna SWR, complex RF impedance: Resistance (R) and Reactance (X) or Magnitude (Z) and Phase degrees, coax cable loss in dB, coax cable length and distance to fault, return loss, reflection coefficient, inductance and capacitance. Tells battery voltage. Has huge LCD digital readout with built-in frequency counter. Side-by-side SWR and RF impedance meters, Ni-Cd internal battery charger, battery saver feature, low battery warning and easy access batteries. Has smooth reduction drive tuning. Truly portable. Uses 10 AA or Ni-Cd batteries (not included) or 100 VAC with MFJ-1315 ($14.95). *HRO Price $219.95*

MFJ-269 covers 1.8 to 170 MHz and 415 to 470 MHz It has all the features of the MFJ-259B, the world's most popular analyzer, plus much more! Large easy-to-read two line LCD display and side-by-side meters clearly show your information. Built-in Ni-Cad/Ni-MH charger circuit, battery saver, low battery warning, smooth reduction drive tuning. Use as signal source for testing/alignment. Built-in CoaxCalculator™ calculates coax line length in feet given coax length in electrical degrees and vice versa for any frequency and any velocity factor (great for building matching sections and phasing lines). New 12-bit A/D converter gives much better accuracy and resolution than common 8-bit A/D converters. Super easy to use! Just set the bandswitch and tune the dial. *HRO Price $319.95*

Antenna Switches

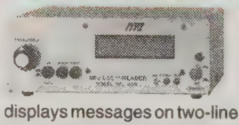
MFJ-1702C Coax Antenna Switch. 2 positions plus center ground, 50 ohm. Rated to 500 MHz with 02 dB loss. Handles 2.5 kW PEP or 1 kW CW. 60 dB isolation at 300 MHz. 50 dB isolation at 450 MHz. Unused terminal grounds for static protection. *HRO Price $25.95*

MFJ-1704 Coax Switch 4 positions plus center ground, 50 ohm. Rated to 500 MHz with 0.2 dB loss. Handles 2.5 kW PEP, 1 kW CW, 50 dB isolation at 500 MHz. Includes a replaceable lightning protection device that reduces lightning surges and static. *HRO Price $63.95*

MFJ-1701 Antenna Switch 6 positions, 50-75 ohm. Handles 2 kW PEP or 1 kW CW. 1.8-30 MHz. SO-239 connectors. Unused positions grounded. *HRO Price $49.95*

MFJ-1700B Antenna / Transceiver Switch 1-6 antennas, 1-6 rigs. Tuner, SWR meter, linear etc. in line to operate any combination. 50-75 ohms. Handles 2 kW PEP or 1 kW CW. 1.8-30 MHz. SO-239 connectors. Unused positions grounded. *HRO Price $79.95*

SWL Products

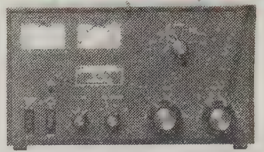


MFJ-462B copies RTTY, ASCII, CW and AMTOR signals. Plugs into shortwave receiver earphone jack and displays messages on two-line, 16 character LCD display. No computer needed. *HRO Price $169.95*

MFJ-1020B Indoor Active SWL Antenna. Tuned circuit minimizes intermod, improves selectivity, reduces noise outside the tuned band. Use as preselector with external antenna. 0.3 to 30 MHz. Tune, Band, Gain, ON-OFF / Bypass Controls. Telescoping whip. Use 9 V battery (not included), 9-18 VDC or 110 VAC with optional MFJ-1312. *HRO Price $69.95*

HF Amps

AMERITRON

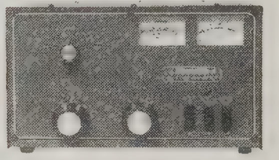


AL-80B

$1199.95

HRO Discount Price

Ameritron's AL-80B gets a kW PEP output from a compact desktop linear that plugs into a 120 VAC outlet. You get 850 watts output on CW and 500 watts on RTTY. It covers all bands 160-15 meters including WARC and MARS. It is user modifiable for 10/12 meters with the proper license. The amp has an extra heavy duty power supply, Eimac® 3-500Z tube, nearly 70% efficiency, tuned input, Pi/Pi-L output, inrush current protection, multi-voltage transformer, dual cross-needle meters, QSK compatibility, two-year warranty. Made in the USA.



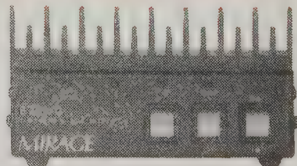
AL-811	AL-811H
3-tube model	4 tube model
600-watt output	800-watt output
$629.95	**$749.95**

HRO Discount Prices

These low-cost HF amps give you plenty of power to burst thru QRM. Either compact desktop linears will slip right into your ham shack, plugging into a 120 VAC outlet. You get three (or four) tough 811A transmitting tubes plus an extra heavy duty power supply, all HF band coverage, pressurized ventilation, tuned input, dual illuminated meters, adjustable ALC, operate / stand-by switch, transmit LED, UPS shippable.

VHF / UHF

MIRAGE



Please see the chart on page 83 for detailed specs and model numbers. All the have a 1 year warranty on the RF power transistors.

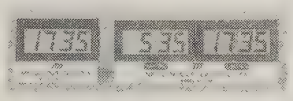
Clocks

12:00
74.1F
79.9F

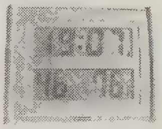
MFJ-152 24 / 12 Hour Clock Plus Temperature. A single glance gives you indoor, outdoor, temps and 24/12 hour time on huge 3/4 inch LCD digits. SImple 5-button operation for max/min temps, backlighting, clear display and hour.minute settings. Lock positions available for 24/12 hour time, clock set and Centigrade/ Fahrenheit. Uses 2 AAA batteries that are included. *HRO Price $24.95*

MFJ-105C 24 Hour Quartz Wall Clock. Handsome black. 10" diameter face, sweep second hand. Uses single "A" battery (not included). *HRO Price $19.95*

MFJ-112 DXer's World Map Clock. Push-buttons let you move east and west on the map display to the time at any QTH. Time display hour/minute/second. Also displays week, month, year and day of the week. User selectable for 12 or 24 hour display format. *HRO Price $24.95*

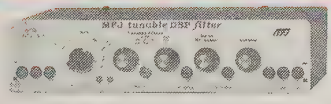


MFJ-107B / 108B 12 / 24 Hour Clocks Uses huge 5/8 inch bold LCD digits. Choose from the dual clock that has UTC and local display or the single 24 hour clock. Brushed aluminum frame. Easy set. *HRO Prices MFJ-108B $19.95; MFJ-107B $9.95*



MFJ-120 Monster Display Atomic Clock World's most accurate clock adjusts itself based on signal readings received from Ft. Collins, Colorado. Calibrates internally to the absolute correct time within a billionth of a second.Operates on two AAA batteries. Choose 24 or 12 hour operation. Clock measures 8H x 10 1/2W x 2D inches. Has relative humidity, and indoor temperature, alarm. Beatiful metallic tan with two huge LCDs (6 1/2W x 2D) *HRO Price $69.95*

Noise Filters



MFJ-784B DSP Filter automatically eliminates heterodynes, reduces noise and interference simultaneously on SSB, AM, CW, packet, AMTOR, PACTOR, RTTY, WeFAX, FAX, weak signal VHF, EME, satellite. MFJ's tunable FIR linear phase filters minimize ringing, prevent data errors and have "brick wall" filter response with up to 60 dB attenuation just 75 Hz away. Tune lowpass, highpass, notch, and bandpass including optimized SSB and CW filters.12VDC or 110VAC w/ optional MFJ-1315. *HRO Price $199.95*

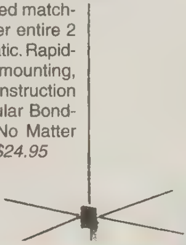
MFJ-1026 wipes out interference on all modes SSB, AM, CW, FM and frequencies from 1.5 to 30 MHz. Wipes out lightning crashes, severe power line noise from arcing transformers, lamp dimmers, touch controlled lamps, electric drills, motors, industrial processes, etc. Dig out weak stations, eliminate unwanted signals. Better than a phased antenna. Connects between transceiver and transmitting antenna. RF sense T/R switch bypasses transceiver when you transmit. Adjustable delay time. Uses 12VDC or 110 VAC with MFJ-1231B ($12.95). *HRO Price $169.95*

HF Antennas

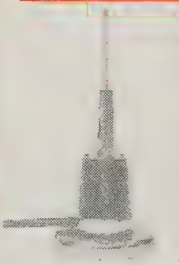
HF Vertical Antenna No Radials

MFJ-1798 Halfwave Vertical. Covers 10 bands: 75/80, 40, 30, 20, 17, 15, 12, 10, 6 and 2 meters. No ground radials or ground needed because of the effective counterpoise that is 12 feet across. Mount it from ground level to roof top. The feed line is isolated from the antenna using MFJ's Air-Core™ balun. Achieves full-sized performance with full size radiators for 2 – 20 meters and high efficiency end-loading for 30, 40 and 75/80 meters. UPS shippable.
MFJ-1796 6 Band Vertical *HRO Price$199.95*
MFJ-1798 10 Band Vertical. Covers 75/80. 40, 30, 20, 17, 15, 12, 10, 6, 2 meters. *HRO Price $279.95*

MFJ-1750 5/8 Wave Ground Plane 300 watt antenna for 2 meters gives you maximum possible gain of any single element antenna. Shunt fed matching network for lowest SWR over entire 2 meter and bleeds off unwanted static. Rapid-tune Radiator™, single U-bolt mounting, strong lightweight aluminum construction protected by Permanent Molecular Bonding Technology™ and 1 year No Matter What™ guarantee. *HRO Price $24.95*
MFJ-1752 220 MHz *HRO Price $19.95*
MFJ-1740 1/4 Wave Ground Plane *HRO Price $19.95*



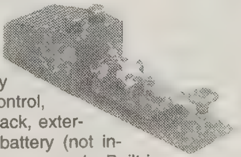
Mobile Antennas



MFJ-1724B Mobile Magnetic Mount Dual Band antenna gives you quarter wave stainless steel whip for 2 meters and 440 MHz, coax and connector. Low SWR, 200 watts. *HRO Price 16.95*
MFJ-1728B Mobile Magnetic Mount 5/8 wave 2 meter antenna, covers 144-174MHz , low SWR, 300 watts. *HRO Price 29.95.*
MFJ-1729 Mobile Magnetic Mount super gain dual band antenna. *HRO Price 34.95.*
MFJ-1734 Dual Band Glass Mount 144 / 440MHz antenna gives 2.6 dB gain on 2 meters and 6.3 dB on 440 MHz. Low SWR on both bands. Free BNC adapter is included for handhelds. HRO Price $39.95
MFJ-1738 2-meter Glass Mount Antenna handles 50 watts with 2.6 dB gain, low SWR over entire 2 meter band. *HRO Price. $29.95*

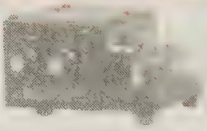
Code Tutor

MFJ-418 Pocket Size Morse Tutor. Learn from zero code speed to Extra Class with customized code practice. Random, QSO mode, word recognition mode. Easy-to-use menu. Uses 9V battery. *HRO Price $79.95*

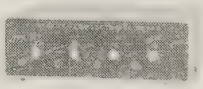


MFJ-557 Deluxe Code Practice Oscillator features a Morse straight key on a non-skid heavy steel base with volume control, tone control, earphone jack, external speaker plug, 9 V battery (not included) or optional AC power supply. Built-in speaker, adjustable contacts. *HRO Price $28.95*

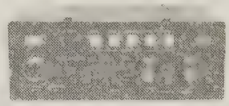
Keyers



MFJ-422D Keyer/ Bencher Paddle combo makes a small, attractive unit that is a pleasure to use. Iambic keying, adjustable weight and tone, front panel volume and speed controls (8-50 WPM), dot-dash memories, sidetone, speaker and automatic or semi-auto / tune modes. Use 9 V battery or 110 VAC with optional MFJ-1305 *HRO Price $134.95*
MFJ-422DX Keyer only. Mount to your Bencher paddle. *HRO Price $79.95*



MFJ-407D Deluxe Electronic Keyer Dot-dash memories, self-completing dots and dashes, jam-proof spacing, RF proof, instant start. Single squeeze, or straight key. Controls include speed, weight, tone and volume. ON/OFF, tune auto / semi-auto, built-in speaker, 9V battery (not included) or 110 VAC with optional MFJ-1305. *HRO Price $69.95*



MFJ-434 Contest VOICE Keyer™ New microprocessor controlled keyer calls CQ, sends your call and does contest exchange for you in your own natural voice! Five natural sounding messages in a total of 75 seconds. Repeat messages continually, varying the repeat delay from 3-500 seconds. Receive audio jack, stop button, PTT mike button, or VOX PTT line. Remote jack. *HRO Price $169.95*

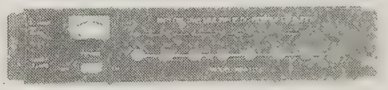
Station Accessories

MFJ-250 1 kW Dummy Load 50 ohm oil-filed dummy load. Low VSWR to 400 MHz. Rated 1 kW CW or 2 kW PEP for 10 minutes. 1/2 rating for 20 minutes. 200 watt CW or 400 watt PEP continuous. Includes high quality transformer oil (no PCB). *HRO Price $59.95*

MFJ-260C VHF/HF Air Cooled Dry Dummy Load. Covers 0-650MHz. 300 watts for 30 seconds. Has derating curves. SO-239 connector. *HRO Price $34.95*
MFJ-264 UHF / VHF / HF Dry Dummy Load covers up to 650 MHz, usable to 750 MHz. Rated 1.5 kW for 10 seconds, 100 watts continuous. *HRO Price $69.95*

MFJ-704 Low Pass Filter suppresses TVI, RFI, phone and other interference. Handles full legal power with 2:1 SWR for 1.8-30 MHz. *HRO Price $49.95*

MFJ-270 Lightning Surge Protector. MFJ's 270 safeguards your radio equipment from damaging static electricity and lightning induced surges. Ultra-fast gas discharge tube safely shunts up to 5000 amps of peak impulse current to an independent ground. Use up to 1000MHz. Insertion loss < 0.1 dB. Low SWR to 1.1:1. Does not protect against a direct lightning hit. *HRO Price $29.95*



MFJ-1118 High Current Multiple DC Outlet. Gives you two HF and/or VHF transceivers and six or more accessories from your transceivers's main 12 VDC power supply. *HRO Price $74.95*

MFJ-1116 Deluxe Multiple DC Power Outlet. 8 outlets for powering accessories. *HRO Price $49.95*

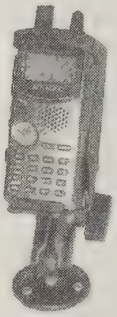
MFJ-1112 like MFJ-1116 without ON / OFF switch, voltmeter and fuse. 6-pair outlets. *HRO Price $34.95*

Mount Anything Anywhere with R-A-M!

The mounting systems shown demonstrate only a few of the many useful combinations. With different R-A-M compatible items, applications are limited only by your imagination.

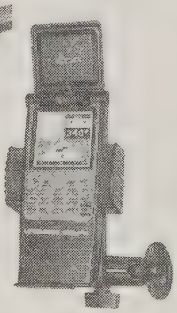
R-A-M is the revolutionary universal mounting system that allows you to mount practically anything anywhere. Whether it's in an automobile, boat, aircraft, ATV, or motorcycle, R-A-M's family of more than 160 interchangeable accessories offer solutions to your most challenging mounting problems. If you need to mount a radio, GPS, computer, cellular phone, antenna, or just about anything else look no further. R-A-M mounts will help make a professional job easy and affordable. They will allow you to quickly reposition or remove your electronics for perfect viewing or safe keeping. Its unique design provides easy installation, mobility, strength, versatility, vibration protection and durability, all at a low cost. R-A-M is made of marine grade aluminum with a powder coated finish, stainless steel hardware, rubber balls, and is backed by NPI's renowned Lifetime Warranty. Visit the R-A-M web site at: www.ram-mount.com to see the newest products and to learn more about this revolutionary mounting system.

1" Ball Mount for hand-held electronics with belt clips.
Item **RAM-B-138-BC1**
Weight .80 lbs.
Retail- $27.99

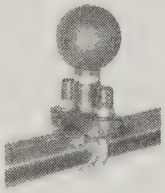


1" Ball Mount for Kenwood TH-D7A.
Item **RAM-B-138-KE1**
Weight .80 lbs.
Retail- $27.99

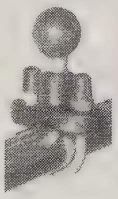
3/4" to 1" Diam. Rail Mount Adapter Kit for all R-A-M bases.
Item **RAM-233**
Weight .28 lbs.
Retail- $13.99



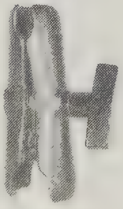
1" Ball Universal metal hand-held molder 1 3/8" to 4 1/8" wide.
Item **RAM-B-120**
Weight 1.48 lbs.
Retail- $49.95



1/2" to 1" U-Bolt Base with 1 1/2" ball.
Item **RAM 231**
Weight .36 lbs.
Retail- $14.99

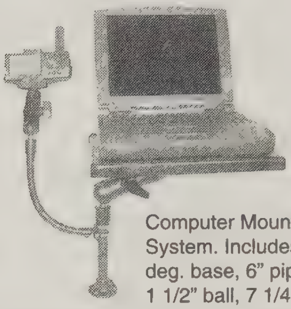


1/2" to 1" U-Bolt Base with 1" ball.
Item **RAM-B-231**
Weight .28 lbs.
Retail- $13.99

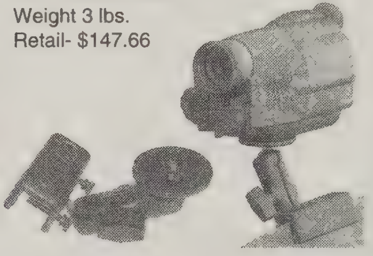


Double Socket Arm for 1 1/2" balls.
Item **RAM-201**
Weight .68 lbs.
Retail- $18.99

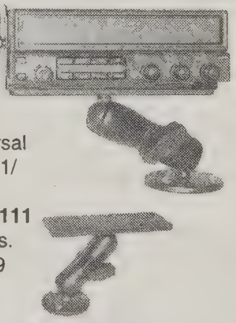
Flex Arm Mounting System. Includes 1/2" to 1" u-bolt base 12" flex arm with ball, double socket arm, and base with 1" ball. Item **RAM B-142-12**
Weight 1.25 lbs. Retail- $58.99



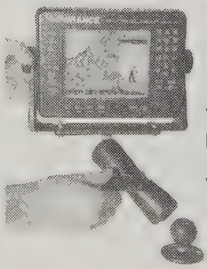
Computer Mounting System. Includes 90 deg. base, 6" pipe with 1 1/2" ball, 7 1/4" dbl. socket arm & 10" X 13 1/2" plastic tray.
Item **RAM-134-90**
Weight 3 lbs.
Retail- $147.66



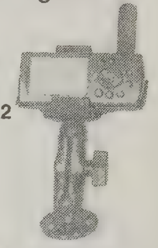
1/8" to 1" Clamp with 1" ball for radios, cameras, antennas, radar detectors, GPS, etc. Attach to many profiles including glass. Item **RAM B127**
Weight .81 lbs.
Retail- $34.99



1" Ball Universal Mount with 6 1/4" x 2" plate.
Item **RAM-B-111**
Weight .86 lbs.
Retail- $29.99

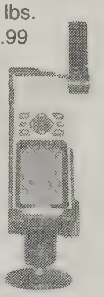


1 1/2" Ball Universal Mount with 6 1/4" x 2" plate.
Item **RAM-111**
Weight 1.45 lbs
Retail- $39.99



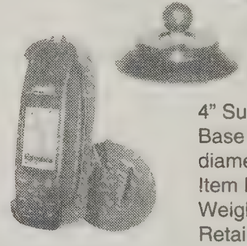
1" Ball Mount for Garmin II & III series GPS.
Item **RAM-B-138-GA2**
Weight .80 lbs.
Retail- $27.99

1" Ball Mount for Garmin 12 series GPS.
Item **RAM-B-138-GA1**
Weight .80 lbs.
Retail- $27.99

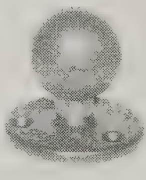


1" Ball Mount for Garmin 48 & 90 series GPS.
Item **RAM-B-138-GA3**
Weight .80 lbs.
Retail- $27.99

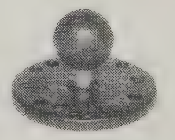
1" Ball Mount for Magellan Blazer 12, 300, 315 & 320.
Item **RAM-B-138-MA1**
Weight .80 lbs.
Retail- $27.99



4" Suction Cup Base With 1" diameter ball.
Item **RAM-B-224**
Weight .24 lbs.
Retail- $21.99



2 7/16" Diameter Base with 1 1/2" ball.
Item **RAM-202**
Weight .19 lbs.
Retail- $10.99



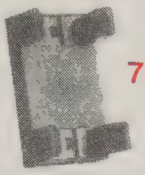
2 7/16"Diameter Base with 1" ball.
Item **RAM-B-202**
Weight .12 lbs.
Retail- $9.99

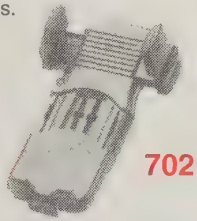
Call Toll Free for More Information

GPS / Radio / Phone Holders

Portagrip

Portagrip offers a collection of holders for cellular phones, GPS units and radios that will make your mobile operations easier and safer.Standard foot size: 2.5 x 2.5 inches. For tight quarters, use the small foot: 2 x 1.625 inches.

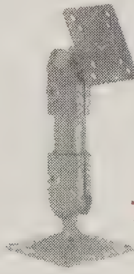

701


702

Portagrip Holder - hold most phones from 1.6" to 2.6" wide. Includes models *701*, *706* Portagrip / Slim-line with set screw adjustment, *707* Porta-grip / Slimline with knob adjustment.

Portagrip 2000: adjustable both in width and length. Includes models *702* for narrow phones, *703* for phones up to 2.25' and *704* for flip-style phones.

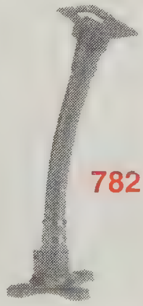
322


716

Standard Mounts: Split ball base with 90 degree tilt movement. Includes models *320* std mount w/6" rise, *322* deluxe mount w/6" rise, *328* mount base only accommodates 5/8" diameter post tilts 0 to 90 degrees, *329* base only accommodates 5/8" diameter post and tilts to 45 degrees over center.

Slimline 2000 Pedestal Mounts: Pivot 210 degrees and rotate 360 degrees, 6" or 9" heights. Includes model *716* w/set screw adjustment at head and foot, *717* knob adjustment at head and foot.

726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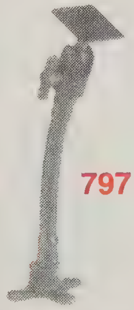

797

Mini Mount: Perfect for tight installations, height only 4". Includes models *726-04* set screw adjustment at head and *727-04* knob adjustment at head.

Stay-put Flex Mount: Includes model *782*.

Uniflex Mount: Includes model *797* with knob adjustment under mounting plate.

Advanced Battery Systems

NiCD Batteries

NiCD replacement battery packs are available for all popular handhelds. Super (S) models offer additional operating time when compared to manufacturer-provided batteries. Depending on the battery model and radio, an additional 15-100% operating time can be achieved.

Alinco Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
EBP-34	8.4	1200	$35.00
EBP-34S	4.8	1700	$49.00
EBP-35	7.2	900	$50.00
EBP-36	9.6	650	$55.00

Icom Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
BP-7S	13.2	1200	$65.95
BP-8S	9.6	1700	$65.95
BP-83S	7.2	1200	$43.95
BP-84S	7.2	1700	$63.95
BP-85S	12	1200	$76.95

Kenwood Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
PB-13S	7.2	1200	$49.95
PB-14S	12	400	$60.95
PB-17	12	1200	$49.95
PB-18	7.2	1700	$49.25
PB-33	6	1200	$49.00
PB-34	9	600	$54.00

Yaesu Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
FNB-12	12	600	$54.95
FNB14S	7.2	1700	$59.95
FNB-26S	7.2	1700	$65.95
FBN-27S	12	1200	$65.95
FNB-33	4.8	1700	$53.25
FNB-35	7.2	600	$49.95
FNB-38	9.6	650	$66.90
FNB-40	6	600	$40.95
FNB-47	7.2	1200	$50.95
FNB-49	7.2	600	$45.95

Li-ion POWERBank

MH-DPB140LI

Designed to be a simple to use informative power storage device. Wear like a pager and supply power to your portable devices. Charge from 110VAC or 12V outlet in any vehicle. 1400 mAh at 7.2 V for devices that accept 7.2v input. **HRO Price $69.95**

NiMH POWERBank

MH-DPB180M

NiMH batteries at 1800mAh at 6 volts for devices that accept 6 volt input. **HRO Price $59.95**

NiMH Batteries

Advanced Battery Systems also makes environmentally friendly Nickel-Metal Hydride battery packs. Each battery is equipped with short circuit and over charge protection. NiMH batteries do not develop the permanent "memory effect" often associated with NiCDs. NiMH chemistry has much higher capacity per volume and weight than NiCD chemistry. There are NiMH replacement packs for most popular handhelds.

Alinco Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
EBP-34M	4.8	2450	$59.95

Icom Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
BP-7M	13.2	900	$69.00
BP-7SM	13.2	2450	$75.00
BP-8M	8.4	2450	$69.00
BP-83M	7.2	1500	$50.00
BP-84SM	7.2	2450	$60.00
BP-85SM	12	1500	$75.00

Kenwood Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
PB-13SM	7.2	1500	$50.00
PB-14SM	12	600	$50.00
PB-17M	12	1500	$69.00
PB-18M	7.1	2450	$55.00
PB-33M	6	2150	$49.00
PB-34M	9.6	900	$57.00
PB-39M	9.6	1050	$50.00
PB-39MH	6	1800	$50.00

Standard Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
CNB-152M	12	900	$69.00
CNB-153M	7.2	1500	$49.00

Yaesu Radios

	Volts (DC)	Capacity (mah)	HRO Price
FNB-11M	12	1500	$59.00
FNB-25M	7.2	900	$50.00
FNB-26SM	7.2	2450	$64.00
FNB-27M	12	900	$59.00
FNB-27SM	12	1500	$59.00
FNB-33M	4.8	2450	$49.00
FNB-35M	7.2	900	$65.00
FNB-38M	9.6	900	$75.00
FNB-41M	9.6	900	$55.00
FNB-47M	7.2	1800	$75.00

MAHA

BATTERY PACKS / CHARGERS

NiMH Ham Radio Batter Packs

Model	Volts (Vdc)	Capacity (Mah)	Compatible Handheld	HRO Price
MH-CNB-152	12	1000	ADI AT-201, 401 Standard C-158,228, 288, 528	$59.95
MH-CNB-153	7.2	1300		$49.95
MH-FNB-12	12	1000	Yaesu FT-470,411,811,23R,33R	$59.95
MH-FNB-17	7.2	1000		$49.95
MH-FNB-27	12	1000	Yaesu FT-530,76,415,815,729	$59.95
MH-FNB-31	4.8	650	Yaesu FT-51R,41,11	$49.95
MH-FNB-38	9.6	650		$59.95
MH-FNB-40H	7.2	1000	Yaesu FT-50R,40,10	$59.95
MH-FNB-41	9.6	1800		$55.95
MH-FNB-V47	7.2	1800		$69.95
MH-BP-7	13.2	1000	Icom 2GA,2AT,4GAT,12GAT	$69.95
MH-BP-8	8.4	1200	Icom 2GA,2AT,4GAT,12GAT Radioshack HTX-202,404	$59.95
MH-BP-8H	8.4	1800		$69.95
MH-BP-83	7.2	1300	Icom W2A, 4SA, 2-3-24SAT	$49.95
MH-BP-132G	12	1300	Icom W21,2GXAT,V21AT Gray	$59.95
MH-BP-132B	12	1300	Icom W21,2GXAT,V21AT Black	$59.95
MH-BP-173	9.6	650	Icom W31,W32,T7A,T22,T44,Z1A	$69.95
MH-BP-180	7.2	1000		$49.95
MH-BP-196M	9.6	1350	Icom T2A,T2H	$49.95
MH-BP-199	6	700	Icom T8A,T81	$55.95
MH-BP-200	9.6	680		$59.95
MH-PB-8	12	1300	Kenwood TH77,450T,55AT,26,75	$62.95
MH-PB-17	12	1300	Kenwood TH-27,247,28,48	$69.95
MH-PB-18	7.2	1300		$49.95
MH-PB-32	6	1000	Kenwood TH-22,42,79AD	$47.95
MH-PB-34	9.6	1000		$57.95
MH-PB-39	9.6	1050	Kenwood TH-G71A,D7	$59.95
MH-PB-39H	6	1800		$59.95

NiMHCommercial Battery Packs

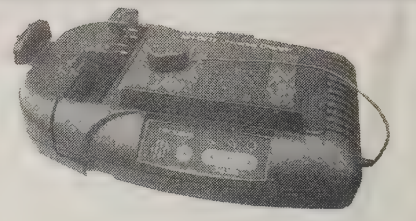
Model	Volts (Vdc)	Capacity (Mah)	Compatible Handheld	HRO Price
MH-7143 NiCD	7.5	1200	Motorola HT, MT, MTX, MTS	$59.95
MH-8148M	7.5	1500	Motorola P110	$58.00
MH9360M	7.5	1300	Motorola GP-350	$58.00
MH-9628M	7.5	1300	Motorola GP-300,600	$58.00
MH-FNB-45	7.2	1200	Vertex VX-200	$49.95
MH-FNB-V47	7.2	1800	Vertex VX-10 (5W)	$69.95
MH-KNB-15M	7.2	1500	Kenwood TK-260,360, 270, 370	$49.95

NiMH FRS Battery Packs

Model	Volts (Vdc)	Capacity (Mah)	Compatible Handheld	HRO Price
MH-FNB-53	3.6	1200	Yaesu VXF-10 (NiMH)	$16.95
MH-BP-202	3.6	800	Icom IC-4008A (NiCD)	$16.95
MH-EBP-S46	3.6	1200	Alinco DJ-S46/11T, S41T (NiMH)	$16.95
MH-UPB-2	3.6	800	Kenwood UBZ-LF14 (NiCD)	$16.95

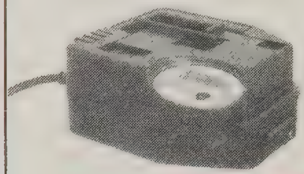
NiMH Rechargeable Battery Cells

Model	Volts (Vdc)	Capacity (Mah)	Description	HRO Price
MH-4AA155	1.24	1550	4 pack of "AA" size NiMH Cells	$15.95
MH-AA155	1.24	1550	Single "AA" size NiMH Cell	$3.99
MH-AAA65	1.24	650	Single "AAA" size NiMH Cell	$2.99
MH-C380	1.24	3800	Single "C" size NiMH Cell	$11.95
MH-D800	1.24	8000	Single "D" size NiMH Cell	$16.95



MH-C777
Universal Charger
$49.95

- Charge nearly any NiMH or NiCD battery pack: ham, cellular, video and more.
- Charges from 4.8v to 13.2v auto detection.
- Rapid charge with –ΔV and ΔT protection.



MH-C888

Drop-in Smart Charger
$59.95

- Drop in style charger can be setup for most ham or commercial radios.
- Rapid charger with –ΔV protection.
- LCD display shows % charged.
- Triple conditioning feature for new or seldom used packs.

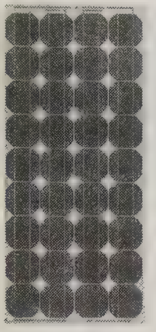
MH-C204F
DC Smart Charger
$26.95
(auto Adapter sold separately)

- Charge NiCD or NiMH cells in less than 2 hours. "AA" or "AAA" sizes.
- Condition feature restores seldom-used batteries and preps new cells.

MH-C500 Series
FRS Chargers
$39.95 each

- Drop-in intelligent charger for Kenwood, Yaesu, Alinco, and Icom FRS radios.
- Dual slots charge two radios at once.

SOLAR POWER SYSTEMS



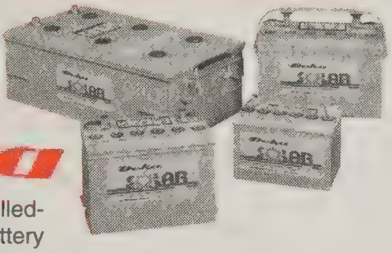
SIEMENS

Solar Modules

Even in severe environmental conditions, Siemens solar modules endure and continue to generate power reliably. They have been engineered for strength, durability, and dependable operation in any climactic region. Siemens modules feature single crystalline solar cells that are textured and anti-reflection coated for maximum output. Both of the modules listed carry a 25 year warranty.

Model	Nominal Voltage	Rated Power	Rated Voltage	Rated Current	Size (inches)	Weight (lbs)	HRO Price
SP75	12/6 V	75 W	17/8.5 V	4.2/8.5 A	47.3 x 20.8	16.7	$449.95
SR100	12/6 V	100 W	17.7/8.5 V	5.6/11.2 A	59.0 x 23.4	24	$599.95

Batteries



Deka

The valve-regulated, gelled-electrolyte Deka Solar battery is designed to offer reliable, maintenance free power for renewable energy applications. Sealed construction eliminates periodic watering, corrosive acid fumes and spills. The electrolyte will not stratify so no equalization is required. These batteries are rated non-spillable by ICAO, IATA and DOT. Safe to ship by truck or air.

Model	Voltage	Capacity @ 100 Hr. Rate	Capacity @ 20 Hr. Rate	Size (inches)	Weight (lbs)	HRO Price
8GUI	12 VDC	36 Ah	31 Ah	7.75 x 5.13 x 7.25	24	$85.95
8G22NF	12 VDC	56.5 Ah	48 Ah	9.4 x 5.5 x 9.25	39	$139.95
8G27	12 VDC	98 Ah	86 Ah	12.75 x 6.75 x 9.87	64	$199.95

System Package Recommendations

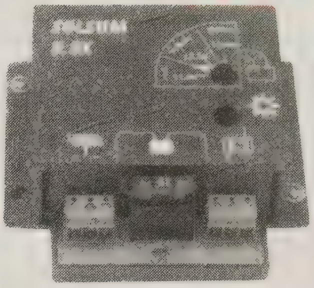
For a 5 Watt Transmitter
- 1 - OEM-20 Solar Module
- 1 - Deka 8GU1 Battery
- 1 - Steca Solsum 5.0X Controller
- Optional SWRGMOEM201 Roof / Ground Mounting Bracket

For a 25-50 Watt Transmitter
- 2 - Siemens SP75 Solar Modules
- 2 - Deka 8G27 Batteries
- 1 - Steca Sigma Charge Controller
- Optional SWRGMSP752 Roof / Ground Mounting Bracket

For a 100 Watt Transmitter
- 4 - Siemens SR100 Solar Modules
- 4 - Deka 8G27 Batteries
- 1 - Steca Solsum Omega Controller
- Optional SWRGMSR10004 Roof / Ground Mounting Bracket

System recommendations are general guidelines. Contact HRO for a computer sizing of your solar powered ham radio appication. For large telecommunications applications, pre-packaged systems ranging from 500 W to 5000 W are available. Call for quotes.

SunWize



All SunWize Products drop shipped to your location

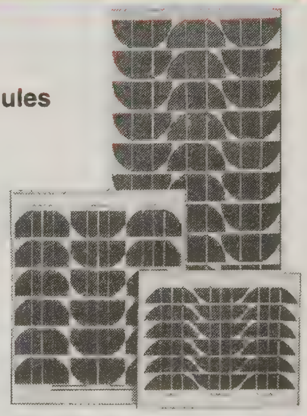
Steca Controllers

The SunWize-Steca Solsum controller is an economical pulse-width modulated shunt controller. A tricolor LED indicates three ranges of battery voltage and a green LED indicates current array. The Solsum controller features overcharge and over discharge protection, temperature compensated charging, MOSFET transistors and fuse protection. These controllers ensure maintenance-free operation and long product life. Available with or without a low-voltage disconnect.

The SunWize-Steca Gamma, Sigma and Omega controllers use an advanced control algorithm that sets new standards for solar charge technology. The self-learning controller automatically adjusts for the capacity and age of the battery. The patented hybrid regulator design combines both series and shunt technology for nominal power consumption. These controllers provide standard protection features as well as a tricolor information LED and tricolor state-of-charge LED. Available with or without an LCD.

Model	Voltage	Rated PV Current	Rated Load	Size (inches)	Weight (lbs)	HRO Price
Solsum 5.0X	12/24 VDC	5 A	5 A	3.4 x 3.85 x 1.37	0.22	$35.95
Gamma	12/24 VDC	12 A	12 A	7.4 x 4 x 1.93	1	$81.95
Sigma	12/24 VDC	20 A	20 A	7.4 x 4 x 1.93	1	$99.95
Omega	12/24 VDC	30 A	30 A	7.4 x 4 x 1.93	1	$124.95

OEM Series Solar Modules

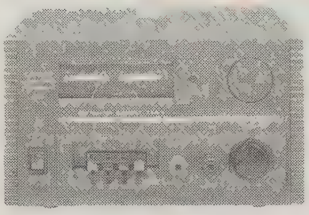


For the best small module value, consider SunWize single crystalline, high efficiency solar modules for superior quality and economic pricing. A ten year warranty reflects the superior quality and assures long produce life.

Model	Nominal Voltage	Rated Power	Rated Voltage	Rated Current	Size (inches)	Weight (lbs)	HRO Price
OEM5	12 V	5 W	16.7 V	.31 A	11.8 x 9.9	2.4	$67.95
OEM10	12 V	10 W	16.7 V	.61 A	15.0 x 13.4	4	$105.95
OEM20	12 V	20 W	16.7 V	1.22 A	20.9 x 16.9	6.4	$164.95
OEM40	12 V	40 W	16.7 V	2.36 A	38.3 x 17.2	12.6	$255.95

POWER SUPPLIES

YAESU



FP-1030A

Yaesu has power supplies primarily designed for use with their HF rigs. These include the **FP-712, FP-1023** and the **FP-1030A** and are low profile switching supplies.

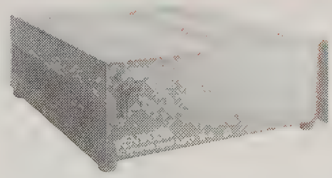
DIAMOND

Switching Mode DC Power Supply

GZV4000

The GZV4000 switching mode DC power supply HAs a 40 amp continuous rating at 100% duty cycle. The supply has variable voltage from 5-15 VDC using a voltage control knob with a center detent at 13.5 VDC. There is overload and short circuit protection with current feedback at approximately 42 amps and temperature protection with a variable speed fan.An AC line filter provides EMI protection. The meter selector allows monitoring of voltage and current. Power and overload indicators are included. Connect your rig easily with front panel DC terminals and a cigarette lighter jack. The unit has in internal 8 ohm speaker. Operates on 120 VAC ± 20%, 50-60 cps. Ripple and noise is less than 8mV rms. **HRO Price: $199.95**

KENWOOD



PS-40

The PS-40 is a compact, switching power supply for high current applications. It is rated at 23 amps and is similar in size to the TS-50. The supply is for 110-230 VAC. Weighs only 4.5 pounds.
Suggested List Price $229.95

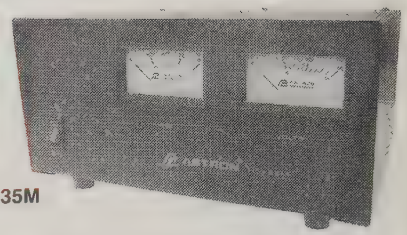
PS-52

Kenwood's largest is designed to use with the TS-850, operating all modes for the rated periods of time. Provides 13.8 VDC at 22.5 A. Has a cooling fan and protection circuits. Can be used with all Kenwood 12 VDC radios. **HRO Price 279.95**

PS-53

Designed for the TS-570 D/S(G) operating all modes for the rated periods of time. Provides 13.8 VDC at 20.5 A. Has a cooling fan and protection circuits.
HRO Price $269.95

ASTRON CORPORATION



MODEL RS-35M

All of Astron's solid-state electronically regulated **Power Supplies** have foldback current limiting to protect from excessive current and a heavy duty heat sink. Output voltage: 13.8 VDC ±.05 volts. 220 V supplies available on special order at slightly higher price.

RS-A Series Standard power supply with on / off switch. Voltage may be adjusted internally.

SL Series Slim Line design for low-profile looks.

RS-M Series Power supply with front meters. One is for voltage and the other current.

SS Series High efficiency switching supplies specially filtered for use with communications equipment for all frequencies including HF. Heavy duty design, low profile, light weight and EMI filter.

VS-M Series Variable power supplies with separate volt and amp meters. Adjustable output: 2-15 volts.

RM Series 19" x 5 1/4" rackmount power supplies available with or without meters and may be variable. The new RM-60 comes with or without meters.

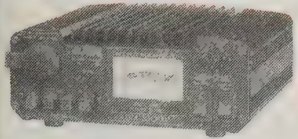
Power Supplies

Brand	Model	Cont.Duty 13.8 VDC	Intermit Duty	Height in	Width in	Depth in	Weight lbs	HRO Price
Alinco	DM-340MVT	30 A	35A	6	9.25	9	21	$159.95
Astron	RS-4A	3 A	4 A	3.75	6.5	9	5	$39.95
	RS-7A	5 A	7 A	3.75	6.5	9	9	$59.95
	RS-10A	7.5 A	10 A	4	7.5	10.75	11	$69.95
	RS-12A	9 A	12 A	4.5	8	9	13	$79.95
	RS-20A	16 A	20 A	5	9	10.5	18	$96.95
	RS-35A	25 A	35 A	5	11	11	27	$149.95
	RS-50A	37 A	50 A	6	13.75	11	46	$219.95
	RS-70A	57 A	70 A	6	13.75	13.75	48	$299.95
	RS-12M	9 A	12 A	4.5	8	9	13	$89.95
	RS-20M	16 A	20 A	5	9	10.5	18	$116.95
	RS-35M	25 A	35 A	5	11	11	27	$169.95
	RS-50M	37 A	50 A	6	13.75	11	46	$239.95
	RS-70M	57 A	70 A	6	13.75	12.12	48	$329.95
	RM-50A	37 A	50 A	5.25	19	12.5	50	$299.95
	RM-60A	50 A	55 A	7	19	12.5	63	$349.95
	RM-35M	25 A	35 A	5.25	19	12.5	38	$259.95
	RM-50M	37 A	50 A	5.25	19	12.5	50	$329.95
	RM-60M	50 A	55 A	7	19	12.5	63	$389.95
	VS-20M	16 A	20 A	5	9	10.5	20	$139.95
	VS-35M	25 A	35 A	5	11	11	29	$199.95
	VS-50M	37 A	50 A	6	13.75	11	46	$259.95
	SL-11A	7 A	11 A	2.75	7.62	9.95	11	$79.95
	SL-15R	12 A	15 A	2.75	7.62	9.95	14	$109.95
	SS-10	7 A	10 A	1.125	6	9	3.2	$80.95
	SS-12	10 A	12 A	1.375	6	9	3.4	$89.95
	SS-18	15 A	18 A	1.375	6	9	3.6	$99.95
	SS-25	20 A	25 A	2.875	7	9.375	4.2	$119.95
	SS-30	25 A	30 A	3.75	7	9.625	5	$129.95
Diamond	GZV4000	40 A					8	$199.95
Icom	PS-35	17 A	20 A	*	*	*	6	$299.95
	PS-85	15 A	20 A					$269.95
Kenwood	PS-40	20 A	23 A	2.38	7.1	8.88	4.5	$199.95
	PS-52	22.5 A	22.5 A	4.25	7	12.25	16	$279.95
	PS-53	22.5 A	22.5 A	6.81	3.78	11.66	15.2	$269.95
Samlex	SEC1212	10 A	12A	2.2	7	8.25	3	$79.95
	SEC1223	23 A	24 A	2.2	7	8.25	4	$89.95
Yaesu	FP-1023	23 A		2.25	6	8.25	4.2	$149.95
	FP-1030A	25 A	30 A					$239.95

* Internal Supply
(220 volt versions of some models available at additional cost by special order. Contact HRO for details.)

POWER SUPPLIES

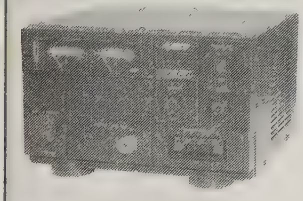
ALINCO



NEW!

DM-330MVT Switching Power Supply

Super compact, lightweight power supply is great for portable operations. Provides 32 amps peak, 30A continuous. Variable output 5-15 VDC. Preset voltage function. Patent pending noise offset circuit moves pulse noise. Short circuit protection. Convenient front panel connections. Cigarette plug socket. **HRO Price $179.95**



DM-340MVT

The **DM-340MVT** is a 35 amp supply with dual meters and convenient front panel connections. Provides up to 30 amps. 110 VAC. **HRO Price $159.95**

ICOM

The **PS-55** is a standard duty supply with cabinet styling to match IC-735 / 728 / 729. The heavy-duty **PS-30** station supply can operate several base station units. The **PS-35** is an internal suppply designed to be installed in the IC-751 or selected VHF / UHF base transceivers. The **PS-85** is specially designed for the IC-706 compact HF rig.

DAIWA

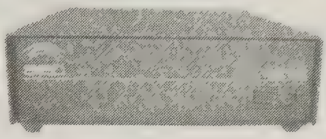
SS-330x

This small, lightweight switching power supply provides 30 amps continuous at 13.8 VDC. A fan is built in. Weight is less than five pounds. **Suggested List: $149.95**

SAMLEX AMERICA

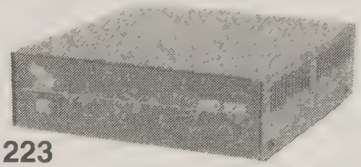
For Base Stations

Switching Mode Power Supplies



SEC-1212

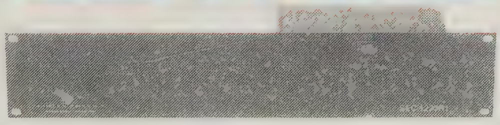
The SEC-1212 was designed specifically for use as a land mobile base station power supply. It uses Mosfet based switch mode technology for high reliability, high efficiency and minimum size and weight. The design reduces output ripple to levels previously available only from bulky, less efficient linear power supplies. It delivers high power with low RFI when used with HF, VHF, and UHF radios. Current limiting and safe operating area circuitry protects devices powered by the SEC-1212 from excess voltage. The supply operates from 100-130 or 200-260 volts and produces 10 Amps continuously, 12 Amps at 50% duty cycle for 5 minutes. Weight is only 3 pounds. UL and cUL approved. Complies with FCC Class B Part 15. 3 year manufacturer's warranty. **HRO Price $79.95**



SEC-1223

Same cabinet size as the SEC-1212, this model provides 23 Amps continuous output power, 24 Amps 50% Duty Cycle and is highly filtered to provide clean power to HF, VHF, and UHF radios. The SEC-1223 features a thermally activated cooling fan. It is UL and cUL listed. 3 year manufacturer's warranty. **HRO Price $89.95**

Rack Mounts



SEC-1223-R1

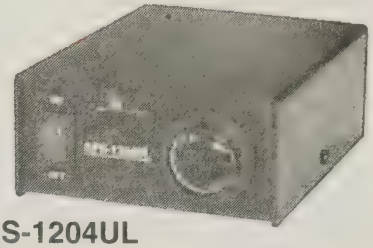
Industry proven SEC-1212 and SEC-1223 regulated DC power supplies are now available in 3.5" by 19" rack mount versions. All are UL and cUL Listed. 3 year manufacturer's warranty.

Model	Continuous Output Power (amps)	50% Duty Cycle (amps)	HRO Price
SEC-1212-R1	10	12	$119.95
SEC-1223-R1	23	24	$129.95
SEC-1223-R2*	23	24	$229.95

* One rack holding 2 SEC-1223, 23 amp power supplies

Compact Multi-purpose

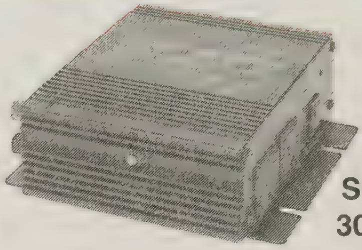
Switching Power Supply



SPS-1204UL

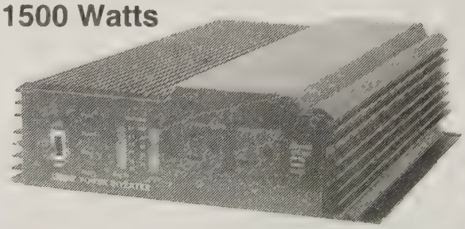
The SPS-1204UL is a compact 3.5 amp switching power supply with a cigarette lighter output socket in the front and a terminal output block at the back. Ideal for electronic projects, cellular phones and general applications. UL and cUL listed. **HRO Price $29.95**

Power Inverters



SI-300HP
300 Watts

PSE-12150A
1500 Watts



12 Volt DC - 115 Volt AC Power Inverters

Samlex DC-AC inverters convert 12V DC batter power into 115V AC household power. Samlex Inverters are industry proven and are fully protected. 1 year manufacturer's warranty.

Model	Continuous Output Power (watts)	Maximum Surge Power (watts)	HRO Price
SI-50HP	50	50	$39.95
SI-140HP	140	300	$59.95
SI-300HP	300	600	$79.95
PSE-1260A	600	1000	$149.95
PSE-1000A	800	1500	$329.95
PSE-1500A	1200	2500	$499.95
PSE-2500A	2400	4500	$799.95

AMPLIFIERS

HF Amplifiers

SGC

SG-500

$1199.95 – HRO Price

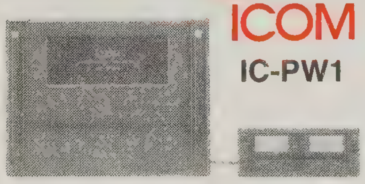
The SmartPowerCube produces tremendous power–nearly as much as a 1 KW amplifier–yet it requires less than one cubic foot of space. Electronic brain power makes it possible. The SG-500 is an intelligent, microprocessor controlled, high-powered linear amplifier, designed with high efficiency transistors. It constantly monitors your HF-SSB's activities, power needs, and antenna condition, and automatically–in less than 15 milliseconds–selects the right broadband filter. It can reliably produce, essentially unattended, in the most demanding conditions. Power supply required. SGC PS50 recommended to guarantee specifications.

HF + 6m Amplifier

HRO
Discount Price
$5399.95

ICOM

IC-PW1



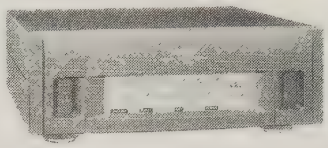
w/ Solid State Remote Control Head

Icom's linear amp provides wide frequency coverage with up to 1kW output requiring only a 100-watt maximum input. The duty cycle is 100 percent with full break-in operation. It covers amateur bands 160 to 15 meters plus 6 meters. Includes an automatic antenna tuner for all bands. Internal circuitry allows the ALC to be adjusted over a wide range so the PW1 to be used with almost any rig, not just Icom. Operates on 110 or 220 VAC 50 or 60 cycle.

YAESU

Quadra System

$3999.95
HRO Price



Here's all the linear amplifier you should need for operation on both HF (160 to 15 meters) and 6 meters. It provides automatic band switching with the FT-1000D, FT-1000MP, FT-920, FT-990, and the FT-900 HF radios.

The amp has 8 MRF150 power MOSFet transistors designed into 4 units of 2 transistors in a push-pull circuit at 48 VDC. The separate power supply, the VP-1000 allows for easy installation. There are two input voltages, 117 VAC or 220 VAC. Output power is a function of the power supply voltages. At 220 VAC there is 1000 watts out on HF and 500 watts on 6 meters. At 117 VAC the output is reduced to 500 watts on HF.

The amplifier comes equipped with a built-in high speed antenna tuner to match the amp to your antennas. It has four antenna outputs and two inputs. The multifunction omni-glow LCD display shows the status of the amplifier. There is automatic system monitoring with VSWR protection.

Patch Cables

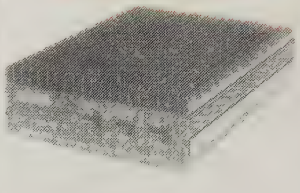
VAN GORDEN

Use Van Gorden Patch Cables to connect your amp to your rig. They are made from RG-8X coax with silver teflon PL-259 connectors. Use the longer cables for antenna runs.

Model	Length (feet)	HRO Price
8X-1.5ST	1.5	$6.99
8X-3ST	3	$8.99
8x-6ST	6	$11.99
8X-12ST	12	$14.95
8X-18ST	18	$18.95
8X-25ST	25	$24.95
8X-50ST	50	$29.95
8X-100ST	100	$49.95

VHF / UHF Amps

MAHA



MH-A104

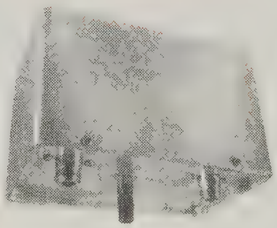
Maha has a line of compact amplifiers for 2m / 70cm single and dual-band use. Their low noise GaAsFET pre-amps will help you receive better and hit repeaters more easily.

While using Maha's docking boosters for your handhelds, there is no need for a battery pack. The booster will power your radio while it boosts the transmission and receive.

The MH-A104 amplifier supports both SSB and FM modes. The output power is adjustable 10 to 100 W with a +5 to + 15 dB adjustable receiver pre-amplifier. More amps and docking boosters are listed on page 83.

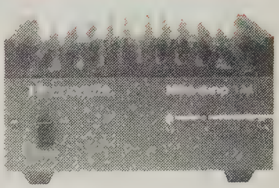
VHF / UHF Preamps

AMPIRE



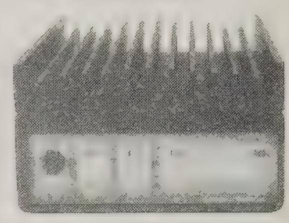
Ampire's low noise pre-amplifiers for VHF and UHF automatically switch from receive to transmit whenever the transmitter is keyed. In receive mode they feature a helical filter with a narrow bandpass. In case of power loss, the relay will drop out of the transmit mode.

rfconcepts



The MINI amps are perfect for use with HTs. Here's that "extra punch" needed for distant contacts.

Mini-Amp 144P 2-meter HT amp features 1 to 6 watts in and gives 20 to 30 watts out. **HRO Price $79.95**



The MAX-amp series is computer designed and features directional couple keying, VSWR protection, and temperature protection.

MaxAmp 10 2-meter power amp has ten watts in and 160 watts out. Also features directional coupler VSWR and temperature protection. **HRO Price $299.95**

MaxAmp 45 2-meter power amp features 40 watts in and 160 watts out. Also has directional coupler VSWR and temperature protection. **HRO Price $279.95**

RFC-4-110 70-cm power amp features ten watts in and 100 watts out. **HRO Price $349.95**

RFC-4-310 70-cm power amp features 30 watts in and 100 watts out. Includes a receive preamp. **HRO Price $329.95**

Call Toll Free for Quotes

HRO will provide 10 meter modification information to amplifier customers upon receipt of a copy of your valid, current amateur radio license.

AMPLIFIERS

Maker	Model	Frequency Range	Modes	Power In	Power Out	Voltage	Current	Pre-amp	Connector	Wgt	HRO Discount Price
Ameritron	AL-1500	160-15 M*	SSB. CW	65 W	1500+ W	220 VAC	15 A	–	SO-239	50 lbs#	$2,499.95
	AL-1200	160-15 M*	SSB. CW	100 W	1500 W	220 VAC	15 A		SO-239	50 lbs#	$2,199.95
	ALS-500M	160-15 M*	SSB. CW	100 W	500 W	13.8 VDC	80 A	–	SO-239	7 lbs	$699.95
	AL-572	160-15 M*	SSB. CW	100 W	1300 W	110/220 VAC	12 A 110V		SO-239		$1,299.95
	ALS-600	160-15 M*	SSB. CW	100 W	600 W	110/220 VAC	16 A 110V	–	SO-239	13 lbs#	$1,099.95
	AL-80B	160-15 M*	SSB, CW	100 W	1000 W	110/220 VAC	15/10 A	–	SO-239	54 lbs	$1,199.95
	AL-800	160-15 M*	SSB, CW	100 W	750 W	110 VAC	12 A	–	SO-239	67 lbs	$1,599.95
	AL-800H	160-15 M*	SSB, CW	55 W	1500 W	240 VAC	9 A	–	SO-239	69 lbs	$2,199.95
	AL-811	160-15 M*	SSB, CW	75 W	600 W	110/220 VAC	8/4 A	–	SO-239	40 lbs	$629.95
	AL-811H	160-15 M*	SSB, CW	75 W	800W	110/220 VAC	8/4 A	–	SO-239	41 lbs	$749.95
	AL-82	160-15 M*	SSB, CW	100 W	1500 W	220 VAC	15 A	–	SO-239	52 lbs#	$2,199.95
Icom	IC-PW1	160-15 M*	SSB, CW	100 W	1000 W	110/220 VAC		–	SO-240	55 lbs	$5,399.95
Maha	MH-A101	144-148 MHz	SSB/FM	5 W	35 W	13.8 VDC		–	SO-239		$69.95
	MH-A102	144-148 MHz	SSB/FM	5 W	35 W	13.8 VDC		yes	SO-239		$89.95
	MH-A103	144-148 MHz	SSB/FM	5 W	50 W	13.8 VDC		yes	SO-239		$109.95
	MH-A104	144-148 MHz	SSB/FM	5 W	10-100 W	13.8 VDC		yes	SO-239		$209.95
	MH-A201	144-148/430-450	SSB/FM	5 W	45 / 35 W	13.8 VDC		–	SO-239		$149.95
	MH-A301 Booster	144-148 MHz	SSB/FM	5 W	50 W	13.8 VDC		yes	SO-239		$109.95
	MH-A302 Booster	144-148/430-450	SSB/FM	5 W	45 / 35 W	13.8 VDC		yes	SO-239		$149.95
Mirage	A -1015G	50-54 MHz	All	10 W	150 W	13.8 VDC	23 A	yes	SO-239	5 lbs	$359.95
	B-34	144-148 MHz	FM	2 W	35 W	12-15 VDC	4 A		SO-239	2 lbs	$69.95
	B-34G	144-148 MHz	FM	2W	35 W	12-15 VDC	4 A	yes	SO-239	2 lbs	$89.95
	BD-35	143-149/430-450	FM	7 W	45 W	12-15 VDC	7 A		SO-239	3 lbs	$149.95
	B-215G	144-148 MHz	All	2 W	150 W	13.8 VDC	20 A	25 dB	SO-239	5 lbs	$309.95
	B-310G	144-148 MHz	All	4 W	100 W	13.8 VDC	15 A	yes	SO-239		$189.95
	B-1016G	144-148 MHz	All	10 W	160 W	13.8 VDC	25 A	10 dB	SO-239	5 lbs	$349.95
	B-1030G	144-148 MHz	All	10 W	300 W	13.8 VDC	48 A	yes	SO-239		$649.95
	B-2516G	144-148 MHz	All	25 W	160 W	13.8 VDC	25 A	10 dB	SO-239	5 lbs	$289.95
	B-2530G	144-148 MHz	All	25 W	300 W	13.8 VDC	48 A	yes	SO-239	15 lbs	$649.95
	B-5016G	144-148 MHz	All	50 W	160 W	13.8 VDC	24 A	yes	SO-239		$289.95
	B-5030G	144-148 MHz	All	50 W	300 W	13.8 VDC	48 A	yes	SO-239		$629.95
	C-22G	222-225 MHz	All	2 W	20 W	13.8 VDC	5 A	yes	SO-239	2 lbs	$159.95
	C-211G	222-225 MHz	All	2 W	110 W	13.8 VDC	20 A	yes	SO-239	5 lbs	$299.95
	C-106G	222-225 MHz	All	10 W	60 W	13.8 VDC	12 A	yes	SO-239	4 lbs	$229.95
	C-1012G	222-225 MHz	All	10 W	120 W	13.8 VDC	5 A	yes	SO-239	5 lbs	$329.95
	C-2512G	222-225 MHz	All	25 W	120 W	13.8 VDC	20 A	yes	SO-239	5 lbs	$299.95
	C-2522G	222-225 MHz	All	30 W	200 W	13.8 VDC	42 A	yes	SO-239		$639.95
	D-15N	425 - 450 MHz	All	2 W	15 W	13.8 VDC	3 A	–	N type		$159.95
	D-26N	430-450 MHz	All	2 W	60 W	13.8 VDC	12 A	–	N type	2 lbs	$259.95
	D-1010N	430-450 MHz	All	10 W	100 W	13.8 VDC	20 A	–	N type	5 lbs	$369.95
	D-3010N	430-450 MHz	All	30 W	100 W	13.8 VDC	20 A	–	N type		$329.95
	D-100-ATVN	429 MHz ATV	All	1 W	52 W	13.8 VDC	20 A	–	N type		$379.95
	D-1010-ATVN	430 MHz ATV	All	10 W	100 W	13.8 VDC	20 A	–	N type		$379.95
RF Concepts	MAXAMP-10	144-148 MHz	All	10 W	150+ W	13.8 VDC		yes			$299.95
	MAXAMP-45	144-148 MHz	All	45 W	150+ W	13.8 VDC		yes			$279.95
	4-310	420-450 MHz	All	.2-40 W	(30in)100 W	13.8 VDC	20 A	12 dB	N type	5 lbs	$329.95
	4-110	420-450 MHz	All	.2-15 W	(10 in) 100 W	13.8 VDC	22 A	12 dB	N type	5 lbs	$349.95
SGC	SG-500	Domestic	SSB,CW		500 W	13.8 VDC	**				$1,199.95
Yaesu	Quadra System	160-15 M*+ 6m	SSB, CW	100 W	1000 W	110/220 VAC	†	–	SO-239	33 lbs	$3,999.95

* Owner modifiable for 10 m # Add 35 pounds for transformer shipped in separate package. ** SGC PS-50 recommended † VP-1000 power supply included

FILTERS

Antenna Noise Canceller

Timewave Technology Inc.

NEW!

ANC-4

The ANC-4 is an rf device that eliminates or reduces power line noise, computer noise, TV generated interference, and other types of electrical noise. The unit attaches directly to the antenna connector of the receiver or transceiver to cancel locally generated noise before it gets into the receiver and affects the receiver AGC circuits. Reception of signals well below the noise level of the local interference is possible.

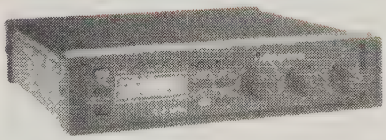
To cancel locally generated interference, the ANC-4 detects the interfering signal and adjusts its phase and magnitude so that it matches the offending interference at the receiver input, but is 180 degrees out of phase, effectively cancelling the interference. Front panel controls allow adjustment of both the phase and magnitude of the local interference, providing extremely deep cancellation of the offending interference.

The ANC-4 connects between the main station antenna and the receiver antenna connector. A second antenna connects to the ANC-4 to act as a noise pickup antenna. A short wire antenna or a short collapsible whip is generally satisfactory for eliminating noises generated around the operating position or in the house, but an external antenna usually works better to eliminate noises generated outside the home. Any noise antenna that works, including combinations of horizontal and vertically polarized antennas, is satisfactory.

The ANC-4 operates as an active antenna by using the noise antenna and the NOISE GAIN control to amplify the antenna output. The unit can also be used as a diversity combiner to peak weak signals or null interfering signals.
HRO Price 189.95

Digital Processor

Timewave Technology Inc.



All Mode Noise Filter & RTTY Modem DSP-599zx

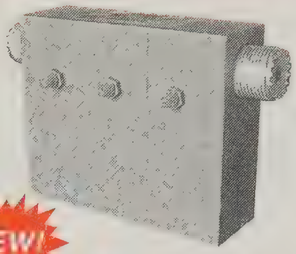
This powerful noise and QRM filter surpasses the newest "DSP" radios with its flexible features. Continuous filter tuning up to 5 kHz opens up wider bandwidth modes like shortwave, AM broadcast, and VHF/UHF FM. Heterodynes disappear, weak signals pop up from the noise, and the sharp filters slice away QRM. The DSP RTTY modem (w/optional DSP-RTTY software) pulls out solid copy when you can barely hear a signal. An AM line noise filter dramatically reduces noise that the newest radios can't touch! Filter settings are easy-to-read on the backlit alphanumeric LCD display. Pushbuttons select noise reduction, memories, voice, CW, and data modes. Optical encoders tune the filters.

- Hyperspeed DSP - 27 ns, 36.8 MIPS.
- 2 selectable channels with multiple memories.
- Front panel programmable input sensitivity and line output level.
- Calibrated audio voltmeter & generator.
- AC line noise filter for AM.
- 13 preset data filters + 2 user presets.

HRO Price $369.95
AC-4 P.S. $19.95

Intermod Filter

Par Electronics



NEW!

2 Meter Filter

VHFTN152-158

Pagers, because of their frequency assignments, power levels and high probability of being on the air, are the cause of over 99% of 2m and 70cm intermod. This notch filter greatly reduces these signals in both of the VHF pager bands, eliminating the intermod while allowing unimpeded reception of the remainder of the VHF band. This means you can still monitor public safety, NOAA weather, etc. In addition, these filters can be used on dual (2m/70cm) or triple (6m/2m/70cm) band transceivers. Their compact size makes them ideal for either fixed or mobile application. The filter is passive, requiring no power or switching. Insertion loss is so low as to be completely undetectable, even on the weakest signals. Notch bands 152-153 MHz. 157-159 MHz. Power handling 50W nominal. Silver/Gold/Teflon SO-239. VSWR @6m,2m,70cm 1.2:1 worst case. **HRO Price $82.00**

Telephone Filters

K-COM

Stop telephone RFI from transmitters in the 0.5 to 30 MHz range. These filters are assembled and come with instructions. Special order either model to cover 500 kHz to 3.0 MHz. Call for prices and information.

Model RF-1 Single Line Filter for phones, answering machine, modems, faxes, & cordless phones. RJ-11 modular connectors. Special ordered for two-line phones. **HRO Price $16.95**

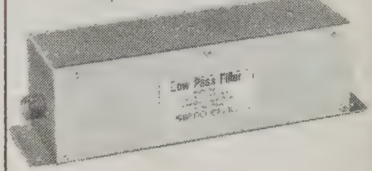
Model RF-2 For inserting RFI filtering into telephone wiring: inside phone jacks, behind wall-mounted phones, etc. Solderless connectors. **HRO Price $10.95**

High / Low Pass

BENCHER, INC.

Made in USA

YA-1



Bencher's low-pass filter has exceptional specifications. Working range: 1.8-29 MHz. Impedance: 50 ohms. Power rating: 1.5 KW continuous, 5 KW peak. Attenuation: at least 80 dB at 54 MHz. **HRO Price $69.95**

Bandpass Filters

DIGITAL COMMUNICATIONS INC.

DCI-146-4H

Bandpass Filters

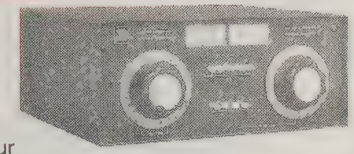
Eliminate intermod with these bandpass filters **for 144, 220 and 440 MHz.** Connect a filter between your VHF / UHF, base or mobile rig and antenna. Enjoy your favorite station without listening to the squawks and squeals of intermod. These filters reduce the strength of interfering signals while allowing the signals you want to hear to pass through at virtually full strength.

The filters are made to first-class specifications with silver-teflon connectors and extruded aluminum, copper and brass. In addition to the standard 4-pole filters, 7-pole and larger ultra-sharp filters are available. Contact HRO for more information. The DCI-146-4H intermod filter for 2 meters is 12"X3"X5" and has UHF connectors. It can be custom tuned to almost any frequency between 100 and 900 MHz. **DCI-146-4H: HRO Price $89.95**

ANTENNA TUNERS

BALUNS

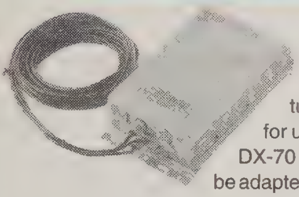
3 KW Tuner MB-V-A



This high quality tuner is for the amateur who wants "the best." Match transmitter output impedance to almost any antenna system for maximum power transfer. Low pass Pi network tuning 1.8-30 MHz. Automatic SWR. Separate power meter, 300 or 3000 W. Push button antenna switch for 4 antennas. Includes 3 KW balun. **HRO Price $799.95**

ALINCO

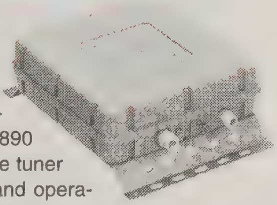
EDX-2



This automatic tuner is designed for use with the Alinco DX-70 HF radio but may be adapted for use with most HF rigs. Tunes from 10 to 160 m with wire lengths of 8 to 80 feet (40' for 160m). **HRO Price $299.95**

YAESU

FC-800

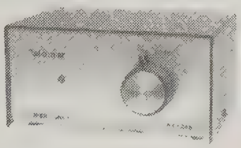


This automatic antenna tuner operates with the FT-890 HF transceiver. The tuner is fully automatic and operations can be controlled from the front of the FT-890. **HRO Price $469.95**

Tuner-Tuner™

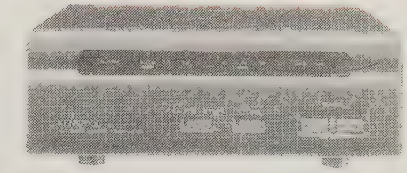
Palomar Engineers

Tuner-Tuner™ PT-340



If you use an antenna tuner, then you need the Palomar Tuner-Tuner to tune it to your operating frequency without turning on your transmitter, Connect the Tuner-Tuner between your tuner and your rig. Tune your receiver to the frequency on which you want to operate, Turn on the Tuner-Tuner and you will hear a loud, S9+ noise. Adjust your tuner until the noise drops out completely. Turn off the Tuner-Tuner and you are ready to transmit. **HRO Price $99.95**

KENWOOD



AT-50

A fully automatic antenna tuner to use with the TS-50 and other 100 watt HF transceivers. Useful for both mobile or fixed operation. Accurate tuning by pressing the AT TUNE key on the TS-50. Can be installed remotely. **HRO Price $339.95**

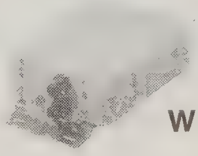
ICOM

Icom has two antenna tuners to use with their radios. All are automatic and, with the front panel controls, can be used with most HF exciters. Random wire and balanced line antennas cannot be used with the resonant antenna tuners. See the table on Page 9 for more tuner / radio compatibilities.

AT-180

Resonant Antenna Tuner

Fully automatic 100 W tuner styled for the IC-706. HF/6 meters. **HRO Price: $499.95**



AH4 Random Wire Tuner

This automatic tuner covers 3.5 - 50 MHz with a 7 meter or longer antenna or the optional AH-2b antenna element (7 MHz to 50 MHz). Use with all Icom transceivers. Forty-five memories store channel information for quick tuning. Installation is simple. No adjustments are necessary. Just connect the control and antenna cables. Its small size allows installation in a variety of locations. **HRO Price $309.95**

For Icom 706 or 706MkII

Better RF

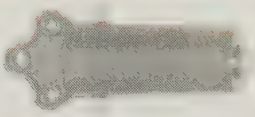
Tune Control

Tune control plugs into the Molex connector on the back of your radio and makes the "Tuner/Call" button operational. The tuner button will then emit a steady carrier at 10 watts for tuning antennas and checking SWR.
Suggested List $32.95

Baluns

BENCHER

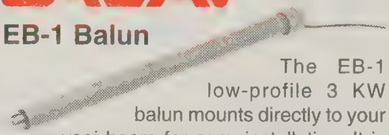
ZA-1A Balun



The ideal 1:1 Balun for dipoles, quads, inverted vees, and yagis from 80 - 10 meters lets your antenna radiate, not your feed line. It will accept 1/4" support rope for inverted vees. No rusting materials used. No ferrite cores to saturate and cause TVI. DC grounded for lightning protection. Included "O" ring seals coax connector. Rated 5KW peak. This tough, well-made product, will provide years of reliable service. **HRO Price $40.95**

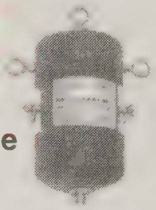
CAL-AV

EB-1 Balun



The EB-1 low-profile 3 KW balun mounts directly to your yagi boom for easy installation. It is broad band, 50 ohms, and has a frequency range of 1.8 to 30 MHz. The EB-1 has an SO-239 connector and easy-to-connect #14 wire leads color coded for antenna phasing. The balun is vacuum impregnated and sealed for durability and protection from the weather. **HRO Price $39.95**

CENTAUR ELECTRONICS



High Performance Baluns

- State-of-the -art.
- 0.5 to 50 MHz performance with advanced toroidal transformer.
- 3KW SSB rated.
- Extended performance in hostile environments.
- Stanless steel hardware.
- Heavy-duty body materials.
- Military grade internal companents • 3" x 7"

B11W10-50	1:1 dipole	$49.95
B11Y10-50	1:1 yagi	$49.95
B41Y10-50	4:1 yagi	$64.95
B41LW10-50	4:1 ladderline to coax	$64.95

Ham Radio Outlet Accepts

MasterCard VISA DISCOVER

Lightning Protection

PolyPhaser® CORPORATION

Coaxial Impulse Suppressors

Hermetically-sealed voltage sensitive gas tubes and other components assure that surge voltages and currents will not reach your equipment. See chart below for models.

Rotator Control Protector

Model IS-RCT

Provides protection for rotator controllers, motors, control box and other nearby equipment. **HRO Price $54.95**

In-Line Phone Line Protector

Model IS-SPTL

Multi-stage protection, with large bandwidth and fast response time. For telephone trunk lines–handles standard ring voltages to 105 Vrms. Handles surges up to 36 kA. **HRO Price $57.95**

Power Line Extension Protector

Two-outlet extension cords with master on/off switch and circuit breaker offer added power line protection.

	Length		HRO Price
IS-PLDO-120-15A	15'	120V@15A	$169.95
IS-PLDO-120-20A	6'	120V@20A	$199.95

Grounding Panel

Model CU-SPGP

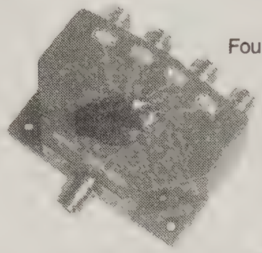
A .062" thick copper plate mounted on a painted 1/2" plywood backing. Mounting protectors and a single ground point established for station equipment. Comes with concrete anchors, all mounting screws, 10' of 1.5" copper grounding strap, 2 brass sandwich plates, and joint compound. 18" x 12". **HRO Price $69.95**

Model	Mount	Freq. Range MHz	Maximum Power Watts	HRO Price
IS-50 UX-C0	Flange	1.5-400	HF - 2kW; VHF - 375W; UHF - 125W	$61.95
IS-50 UX-C1	Flange	50-700	VHF - 375W; UHF - 125W	$61.95
IS-50 NX-C2	Flange N connect	125-1000	VHF - 375W; UHF low - 125W; 800 MHz - 1GHz - 50W	$61.95
IS-B50 LU-CO	Bulkhead	1.5-400	HF - 2kW; VHF - 375W; UHF - 125W	$64.95
IS-B50 LU-C1	Bulkhead	50-700	VHF - 375W; UHF - 125W	$64.95
IS-B50 LN-C2	Bulkhead N connect	125-1000	VHF - 375W; UHF low - 125W; 800 MHz - 1GHz- 50W	$64.95

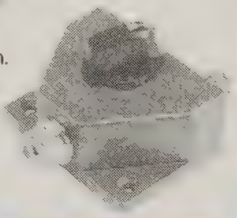
Coax Switches

DAIWA

Daiwa has two heavy-duty coaxial switches. Both are useable to 500 MHz and the unused positions are grounded. Switches are available at slightly higher prices with type "N" connectors.



CS-401
Four-position switch.
HRO Price
$159.95

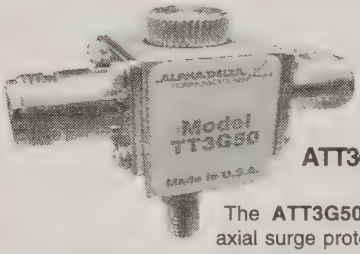


CS-201
Two-position switch.
HRO Price $29.95

Surge Protectors

ALPHA DELTA

Transi-Traps

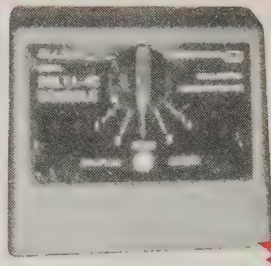


ATT3G50

The **ATT3G50** coaxial surge protector has been designed for the cellular, microwave point-to-point and the broadband wireless industry. These products feature very low loss performance through 3 GHz. Typical loss is 0.1 dB at 1 GHz through 0.5 dB at 3 GHz. This series represents the lowest loss broadband design in the industry. These units are available with a choice of type "N" or "UHF" connectors.

Model	Description	HRO Price
ATT3G 50	200W through 3.0 GHz, Type N	$59.95
ATT3G 50HP	2kW through 3.0 GHz, Type N	$59.95
ATT3G 50U	200W through 500 MHz, UHF	$49.95
ATT3G 50UHP	2kW through 500 MHz, UHF	$49.95

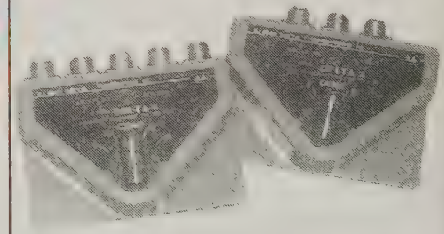
ALPHA DELTA



NEW!

Delta-4C
4 Position Console Switch

These console switches are based on the Delta 4 design and will sit right next to your rig. The case housing and connector arrangement are designed to prevent cables from pulling them backwards off the desk. The powder-coated, heavy black housing makes a nice addition to your station. UHF connectors on 4C and N-type on 4CN.
HRO Price $139.95; Type N $149.95



Delta-4
4 Position Switch

This lightning protected 4 position RF coax switch uses the Alpha Delta Arc-Plug cartridge to protect your equipment from electrical surges. It features the exclusive center "off" (ground) position which internally disconnects and grounds all antenna circuits. Has custom designed cast housing with constant impedance micro-strip cavity construction. Features a positive detent roller bearing switch drive. Handles full legal power. Delta-4/N for type "N" connectors. The Delta-4 handles frequencies through 500 MHz and the Delta-4/N through 1.3 GHz. **HRO Price $79.95; Type N $89.95**

Delta-2
2 Position Switch

This 2 position coax switch is precision lightning surge protected. Has the same constant impedance cavity construction with "center-off" ground as the Delta-4 and a built-in replaceable Arc-plug® cartridge. Order UHF or type "N" connectors for low-loss performance through 1.3 GHz.
HRO Price $49.95; Type N $64.95.

CONNECTORS / CABLES / COAX

Belden

Call for Belden Quotes

Coax

Coax can be purchased in any length up to 1000 feet. 1000' continuous lengths of 9913 or 8214 must be sent by truck.

8214 - RG8 / U

8214 is a standard RG8 /U, #13 stranded copper center conductor, cellular polyethylene insulation, 97% bare copper shield, PVC jacket, 50 ohm impedance, 78% velocity factor and 1.8 dB loss per 100' at 100 MHz. The most popular cable for HF/VHF/UHF. Use when long cable runs are not required.

RG213 / U

RG-213 / U coax, #13 stranded copper center conductor, solid polyethylene insulation, 97% bare copper shield, non-contaminating PVC jacket, 50 ohm impedance, 66% velocity factor and 2.2 dB loss per 100' at 100 MHz. This RG-8 type cable is best for HF use. It may be buried.

9913 / 9913F-7

9913 is RG8-type coax, #9.5 solid copper conductor, semi-solid polyethylene insulation, 100% foil plus 88% braid shield, PVC jacket, 50 ohm impedance, 84% velocity factor and 1.4 dB loss per 100' at 100 MHz. The best cable for VHF and UHF applications. Use **9913F-7** for more flexible runs (subject to availability).

9258 - RG8X

RG8X is small diameter coax, #16 stranded copper center conductor, cellular polyethylene insulation, 95% bare copper shield, PVC jacket, 50 ohm impedance, 78% velocity factor and 3.7 dB loss per 100' at 100 MHz. Good for short VHF runs and most HF uses.

9356 - RG8 / U

100' roll of 8214 RG8 / U coax with PL-259 connectors (crimp type) installed on each end for your convenience.

Rotator Cable

HRO carries two **Belden rotator cables**. Use standard duty cable for runs up to 100 feet. For longer runs, please use heavy duty cable. Belden quality is **tops** in the industry.

8 wire, standard duty - Model 8448 - 8 wire cable using six #22 and two #18 tinned copper conductors. PVC insulation; chrome PVC jacket.

8 wire, heavy duty - Model 9405 - 8 wire cable using 6 - #18 m and 2 - #16 tinned copper conductors. PVC insulation; chrome PVC jacket.

When Ordering Cable

Please order cable in multiples of 50 feet. Continuous length spools up to 1000 feetare available. **Call for quotes.**

Communications Cable

Times

LMR-200

This is a standard RG58 'type' outdoor cable that is ideal for jumper assemblies, short antenna feeder runs, or any application requiring an easily routed, low loss RF cable. It has a solid BC inner conductor, foam polyethylene dielectric, aluminum tape outer conductor, a tinned copper overall braid and black polyethylene jacket. The velocity factor is 83%. It will withstand 1000VDC, a peak power of 2.5 kW, and shielding effectiveness is >90dB.

LMR-240

This is a standard RG8X 'type' outdoor cable that has a solid BC inner conductor, foam polyethylene dielectric, aluminum tape outer conductor, a tinned copper overall braid and black polyethylene jacket. The velocity factor is 84%. It will withstand 1500VDC, a peak power of 5.6kW, and shielding effectiveness is >90dB.

LMR-400

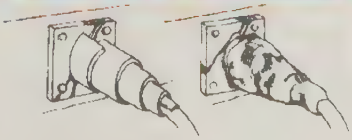
This is a standard RG8 / RG213 'type' outdoor cable that has a solid BCCA inner conductor, foam polyethylene dielectric, aluminum tape outer conductor, a tinned copper overall braid and black polyethylene jacket. The velocity factor is 85%. It will withstand 2500VDC, a peak power of 16 kW, and shielding effectiveness is >90dB.

LMR-400-UltraFlex

Similar specification as LMR-400 with TPE jacket.

Call HRO for Low Discount Prices on Times Cable

Coax-Seal



Coax-Seal will seal all types of coax fittings, baluns, antenna parts and connectors of any shape. Adheres to most surfaces. Wrap Coax-Seal around the object you want to protect and then mold it into shape. Keeps moisture out of the coax fitting on antenna feed lines. Need to make a change? Just remove it and start over.

HRO Price: $2.49/roll

Coax & Connectors

ANDREW

Andrew coax and all the matching connectors you will need are available as a special order drop shipment. Contact your nearest HRO store for complete details.

Model #	Cable Type	Diameter Inches	$/100 feet*
LDF2-50	Foam Dielectric	3/8 inch	189.00
LDF4-50A	Foam Dielectric	1/2 inch	255.00
LDF5-50A	Foam Dielectric	7/8 inch	585.00
FSJ4-50B	Superflex	1/2 inch	373.00

*Plus Shipping

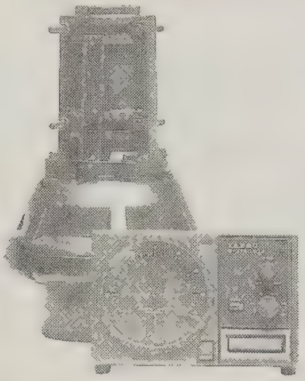
Connectors

Model	Description	HRO Price
B-112XC	BNC for RG-8/X Gold Pin	$3.99
BU-312	BNC to UHF Adapter (BNC-255)	$5.99
NU-312	N to UHF Adapter (4400)	$9.99
SB-312	SMA to BNC Adapter	$9.99
U-245C	4 hole SO-239 Chassis Connector	$1.99
U-311	Double Male UHF (83-877)	$6.99
U-322	UHF Barrel (83-1J)	$4.99
U-332	Long UHF-UHF Barrel (83-1F)	$6.99
U-412	RT. Angle Teflon, Gold Pin (83-1AP)	$8.99
U-512C	UHF "T" (83-1T)	$6.99
UB-312	BNC to UHF Adapter (31-28)	$6.99
UN-312	UHF to N Adpter (14000)	$11.99

YAESU

ROTATORS

Yaesu's high quality rotators for amateurs include models for medium to large arrays and for satellite work. There are also provisions for computer control. Contact your nearest HRO for more specifications and discount prices on Yaesu products.



G2800DXA

The G-2800DXA is a high-technology rotator designed to turn the largest tower-mounted antenna arrays.

G-800SA / G-800DXA

The G-800 rotator series is designed for medium to heavy loads and antennas up to 20 square feet. The G-800DXA is the same as the G-800SA with the addition of presets.

G-1000DXA

NEW!

The G-1000DXA is designed to handle bigger arrays up to 22 square feet. A great value.

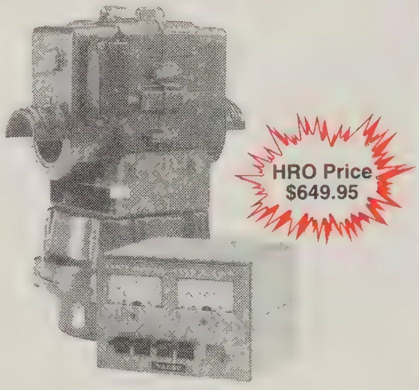
G-450A

The G-450A is ideal for smaller HF and VHF/UHF antennas. Features 360 degree radial compass display with overlap.

Rotator Computer Controllers

The GS-23 Rotator Computer Controller is for the G-800DXA, G-1000DXA and G-2800SDX. **HRO Price GS-23 $319.95**

The GS-232A model is for the DXA Series Rotators. **HRO Price GS-232 $569.95**



G-5500

This is the most popular azimuth and elevation rotator for satellite, moon-bounce or other space communications work. It provides horizontal and vertical antenna rotation in a single unit. The control box has two large meters, one showing elevation and the other azimuth. Meter aiming accuracy is within ±4%. The G-5500 provides 180° elevation rotation with a rotation time of 67 seconds. A 360° azimuth rotation takes just 50 seconds. This rotator accepts up to a 2.5" mast, a maximum 1-5/8" horizontal cross-boom and 440 pounds of vertical load. Computer controllable with optional GS-232 computer interface. **HRO Price $649.95**

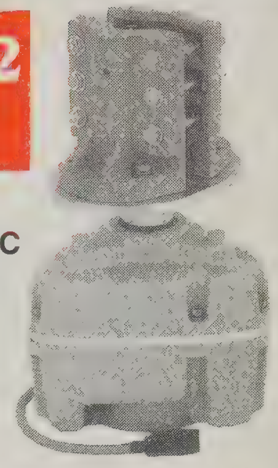
G-550

This is an elevation rotator for satellite work. The control box shows elevation in degrees. **HRO Price $349.95**

Rotator Separation Kit

For some applications it is desirable to separate the azimuth from the elevation rotator on the tower. This separation kit provides all the hardware for the rotator to implement this separation.
HRO Price $23.95

OR-2800DC Rotator



The Orion OR-2800DC is engineered for long life, reliability and performance while turning large antennas or systems. It has a strong ductile iron mast clamp to support up to 3-1/8" masts (optional long bolts required), extended and hardened drive shaft, and prop-pitch style torque plate. The rotator housing fits inside most popular towers and mates to standard tower / rotator plates.

The RC2800P Control Box has digital readout, variable speed control, slow start, and reverse delay, programmability, preset, 2 rotator capacity, coast-down, true AZ readout-continuous and infinite limit position control. The USA-made OR-2800DC has a one year warranty. **HRO Price $1299.95**

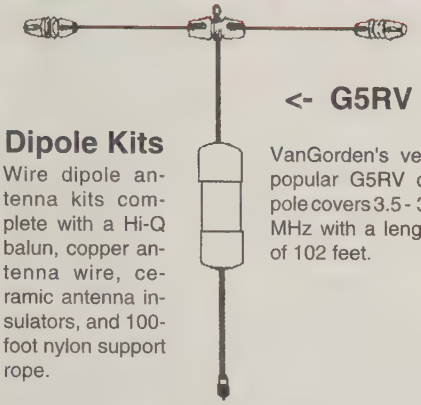
Wind Area Capacity	35 sq. ft.
Starting Torque	4200 in. lbs.
Rotating Torque	3200 in. lbs.
Breaking Torque	17000 in. lbs.
Vertical Load Capacity	1800 lbs.
Mast Size (O.D.)	1.75-3-1/8"
Rotational Speed (360)	55-270 sec.
Readout Accuracy	1 degree
Input Voltage	110/220 AC 50/60 Hz
Motor Voltage	28-42 VDC
Cable Type	8 conductor
Weight (Rotator unit)	42 lbs.

Rotator Specifications

	Model	Input Voltage	Motor Voltage	Rotation Time	Stationary Torque	Rotation Torque	Maximum Windload	Max. Vert Load	Max. Mast Size	Cable Type	Weight lbs (kg)	HRO Pric
M 2	OR-2800DC	110/220 VAC	28 VDC	55 sec	17,000 in lbs	3200 in lbs	35 sq ft	1800 lbs	3-1/8 in	8-wire	42 (19)	$1,299.95
Yaesu	G-450A	110 V	24 VDC	51 sec	217 ft lbs	39.8 ft lbs	10 sq ft	242 lbs	2 in	5-wire	7 (3.2)	$249.95
	G-800SA	110 VAC	24 VDC	55 sec	3456 in lbs	43-79 ft lbs	17 sq ft	440 lbs	2.5 in	6-wire	10 (4.5)	$349.95
	G-800DXA	110 VAC	24 VDC	55 sec	3456 in lbs	43-79 ft lbs	17 sq ft	440 lbs	2.5 in	6-wire	10 (4.5)	$399.95
	G-1000DXA	110 VAC	24 VDC	55 sec	5200 in lbs	79 ft lbs	22 sq ft	440 lbs	2.5 in	6-wire	15 (6.8)	$499.95
	G-2800DXA	110 VAC	24 VDC	55 sec	20,832 in lbs	219 ft lbs	34 sq ft	880 lbs	2.5 in	6-wire	26 (11.8)	$1,069.95
	G-5500	110 VAC	24 VDC	58 sec	289 ft-lbs	*	10.7 sq ft	440 lbs	2.5 in	6-wire	20(9)	$649.95
	G-550	110 VAC	24 VDC	67 sec	289 ft-lbs	101 ft-lbs	10.7 sz ft	440 lbs	1-5/8 in	6-wire	7.9 (3.6)	$324.95

* Elevation 101 ft-lbs, Azimuth 44 ft-lbs

VAN GORDEN



Dipole Kits

Wire dipole antenna kits complete with a Hi-Q balun, copper antenna wire, ceramic antenna insulators, and 100-foot nylon support rope.

VanGorden's very popular G5RV dipole covers 3.5 - 30 MHz with a length of 102 feet.

Standard Length

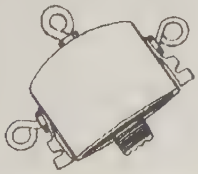
Models D-10 for 10 meters, D-15 for 15 m, D-20 for 20 m, D-40 for 40 m, and D-80 for 75 / 80 m.

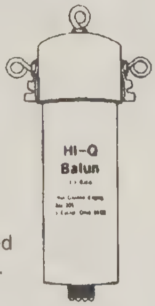
Shortened

Models SD-40 for 40 m and SD-80 for 75 / 80 m.

Parallel

These models are made of multiple dipoles connected at the center balun and fed at this one point. Model PD-8010 is for 10-80 meters, PD-8040 is for 40 and 80 m, PD-4010 is for 10-40 m, and PD-4020 is for 20-40 m.





Baluns / Insulators

Egg insulators. Center and end insulators. 1:1 and 4:1 Baluns.

Van Gorden Antennas

Model	Type	Band	Length ft (m)	Power PEP	Wire Size	HRO Price
D-10	Standard Dipole	10	16(4.9)	2KW	#14	$26.95
D-15	Standard Dipole	15	22(6.7)	2KW	#14	$27.95
D-20	Standard Dipole	20	33 (9.9)	2KW	#14	$28.95
D-40	Standard Dipole	15/40	66 (19.8)	2KW	#14	$29.95
D-80	Standard Dipole	75/80	130 (39)	2KW	#14	$32.95
All-Bander	Standard Dipole	160-10 *	134 (40.8)	2KW	#14	$29.95
Shorty	Dipole	160-10 *	70(21)	2KW	#14	$44.95
SD-40	Shortened Dipole	40	45 (13.5)	2KW	#14	$34.95
SD-80	Shortened Dipole	75/80	90 (27)	2KW	#14	$36.95
PD-8010	Parallel Dipole	10 to 80	130 (39)	2KW	#14	$44.95
PD-8040	Parallel Dipole	15/40/80	130 (39)	2KW	#14	$40.95
PD-4010	Parallel Dipole	10/20/15/40	66 (19.8)	2KW	#14	$38.95
PD-4020	Parallel Dipole	20, 15/40	66 (19.8)	2KW	#14	$34.95
G5RV	Dipole	3.5-30 MHz	102(31)	2KW	#14	$49.95

* Antenna tuner required

Tribanders

Force 12

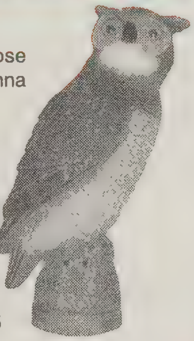
Classic Tribanders C Series

Force 12 has a fine lineup of antennas covering the 20-15-10 bands with a single feedline. All are trapless and are acclaimed as outperforming all the various trapped antennas.

C-3	20-10 m, 18' boom.
C-3S	20-10 m, 12' boom.
C-3SL	20-15-10 m (3-element 20, 3-element 15, 4-element 10, w/ separate feedlines for maximum versatility).
C-4	40-10 m, 18' boom.
C-4S	40-10 m, 12' boom.
C-4XL	40-10 m, 30' boom (with 2 elements on 40).
C-4SXL	40-10 m, 23' boom (with 2 elements on 40).

Call HRO for Quotes

The Owl



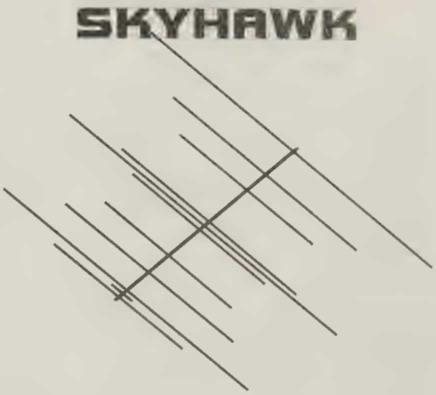
Want to keep those birds off your antenna system?

The OWL is just the trick. Mount this fella on top of your tower and the birds will stay away.

HRO Price $19.95

BENCHER, INC.

SKYHAWK



Skyhawk 3X10

The Next Generation HF Yagi

The Bencher Skyhawk antenna is a major step forward for serious HF operators. It is not just another trapped tribander. The Skyhawk features 10 elements on a 23 foot boom, with three full-sized yagis sharing a common feedline and a common boom. There are three elements on 20 meters, three on 15 meters and four on 10 m. All elements are full-sized with no lossy traps and driven directly.

Special features of the Skyhawk include wide bandwidth, excellent F/B ratios, superb gain, and low weight. With boom and element wind compensators, there is zero rotational mast torque and 90 mph wind survival. All materials are corrosion and UV resistant. Stainless steel blind rivets are used for element assembly.

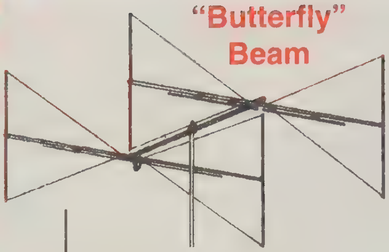
Custom aluminum extrusions make assembly a snap and assure longevity. A new design of boom to mast bracket makes installation the easiest ever. Heavy wall boom construction means that no boom truss cable is required, making it easier to stack antennas for other bands. A Bencher P5 balun is included.

The wind load is 8.5 sq. ft, turning radius 22 feet, wind survival is 90 mph with no ice, 2" boom, 50 ohm impedance and a maximum power rating of 5KW. **HRO Price $1099.95**

Band Specifications

Band	Effective Boom Length	VSWR	F / B	Gain
20	23	<1.4:1	>20 dB	>7 dBi
15	15'6"	<1.3:1	>16 dB	>7 dBi
10	16'9"	<1.6:1	>14 dB	>7.7 dBi

butternut
ANTENNAS



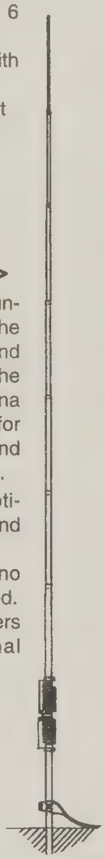
Multi-band HF Verticals

HF9V

More efficient than conventional trapped designs or "halfwave" verticals, the exclusive Butternut Differential Reactance Tuning system allows more of the antenna to be active on each band, for greater bandwidth, lower radiation angle, and superior performance!

- 9 bands, 80 thru 6 meters.
- No-radial operation with CPK counterpoise.
- Highly efficient 26 foot vertical radiator.

HRO Price $369.95



HF2V ->

Are you ready for the sunspot shortage when the action will be on 80 and 40? Be prepared with the HF2V. The entire antenna radiates on both bands for low radiation angle and maximum performance.

- Dual-band optimized for 80 and 40 meters.
- 32 feet tall; no guying required.
- 160 or 30 meters with optional adapters.

HRO Price $229.95

<– HF6V

Work the 6 most popular bands–80, 40, 30, 20, 15 & 10 meters–with a single, highly efficient vertical radiator only 26 feet tall!

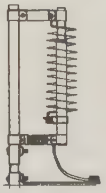
- No radial operation with CPK counterpoise.
- Add 160, 17 & 12, or 6 meters with optional adapters.

HRO Price $289.95

HF5B

Five popular bands in a single lightweight 2 element beam antenna. Ideal where space is limited, the HF5B provides up to 3 dBd on 20, up to 5 dBd on 15, 12, and 10. Light enough to turn with a TV rotator, the HF5B has a 6 foot boom and a wingspan of only 12.5 feet. Weighs only 20 pounds; surtace area is 3 square feet.
HRO Price $439.95

Vertical Antenna Accesories


TBR-160S

TBR-160S 160 Meter kit for HF9V-X, HF2V or HF6V-X. Not recommended for CPK.
HRO Price $119.95

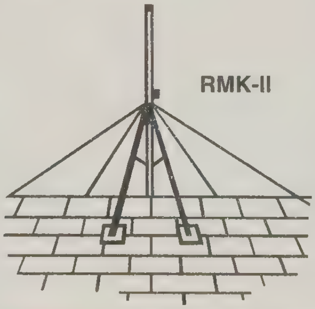
CPK Counterpoise kit for HF9V-X, HF6V-X. Allows operation with no radial system. **HRO Price $119.95**

STR-II Resonant radial kit for above ground mounting of Butternut verticals.
HRO Price $109.95

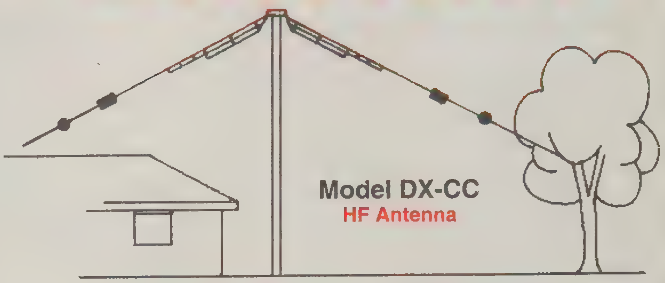
A-17-12 Adapter for 17 and 12 meters for 6 band Butternut verticals. **HRO Price $60.95**

RMK-II-Roof mounting kit. Includes STR-II.
HRO Price $159.95

GPK Ground Radial Kit.
HRO Price $75.95


RMK-II

ALPHA DELTA



HF Antennas for Limited Space

All the limited space antennas use stainless steel hardware where required, are fully assembled, and are manufacturered to withstand severe weather. SO-239 connectors.

Model DX-B is a single wire, high performance quarter wave sloper antenna for 160, 80, 40 and 30 meters. For limited space, the antenna requires only 60 feet for installation. Use with a wide range antenna tuner. Pre-assembled and pre-tuned. Has stainless steel hardware, 12 gauge insulated solid copper wire and the Alpha Delta "ISO-RES" RF choke coils, 50 ohm coax feed. Full legal power. **HRO Price $69.95**

Model DX-CC: A no trap 80-40-20-15-10 meter dipole. 82' long.
HRO Price $109.95

Model DX-DD: A no trap 80-40 meter dipole. 82' long. **HRO Price $89.95**

Model DX-EE: A no trap 40-20-15-10 meter dipole. Only 40' long.
HRO Price $99.95

Model DX-A: A quarter wave twin sloper for 160-80-40 meters. One leg is 67' and the other 55'. Installs as an inverted-V. **HRO Price $59.95**

2D-30 30m and 2D-40 40m Antennas

Two full-size driven elements for 30/40 meters provide maximum bandwidth, and a front-to-rear ratio an S-unit better than 2-element parasitic antennas. Pattern advantage over shortened (e.g., linear loaded) parasitics is even greater. Heavy-duty construction provides years of reliable service. Innovative integral balun-hairpin feed and hardware rated at 3KW. Gain, 6.5 dBi minimum; front-to-rear, 20 dB minimum. Match adjustable to exactly 50 ohms. No-ice wind survival 100 MPH. UPS shippable.

2D-30: Boom: 12 ft. Turning radius: 26 ft. Weight: 56 lbs. Projected area 8.4 sq.ft. **HRO Price $895.00**

2D-40: Boom: 16 ft. Turning radius: 36 ft. Weight: 115 lbs. Projected area 16 sq.ft. **HRO Price $1955**

NEW!

DIP-30A 30m and DIP-40A Rotary Dipoles

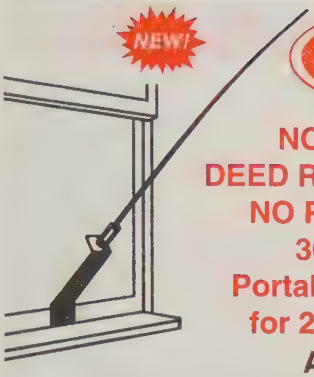
Full-size rotary dipole is easily mounted within a stack, parallel to other booms for minimum interaction. Heavy-duty construction and mounting. EB-1 balun feed, rated at 3KW. No-ice wind survival 100 MPH. UPS shippable.

DIP-30A: Turning radius: 26 ft. Weight: 22 lbs. Projected area 4.6 sq.ft. **HRO Price $295.00**

DIP-40A: Turning radius: 35 ft. Weight: 50 lbs. Projected area 10.1 sq.ft. **HRO Price $845.00**

NEW!

B&W

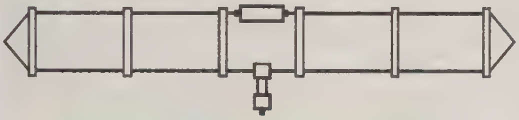


NO YARD? DEED RESTRICTED? NO PROBLEM!

300 Watt Portable Antenna for 2-40 Meters

AP-10A

Designed especially for people that cannot erect a permanent antenna. Easy tuning to any frequency conditions from 10-40 meters. Will also operate 2 and 6 meters. Mounts to a window, table, balcony, etc. Base loaded unit includes telescopic whip, window mount bracket, single coil with flylead/clip, insulated counterpoise wire, 10 ft of coax, hardware. Stainless steel whip collapses to 23" for easy transport. **HRO Price $84.95**



Broadband Folded Dipoles

Barker & Williamson's unique patented design brings you true continuous coverage of 1.8 - 30 MHz in an antenna only 90 feet in length! These very low noise dipoles have an SWR of less than 2:1 from 1.8-30 MHz.

Install as flat, inverted vee, or sloper. Antennas come completely assembled. They are constructed of #14 stranded wire, copperweld or stainless steel. 2KW PEP SSB / CW ICAS. 50 Ohm input with SO-239. No antenna tuner required.

Model	MHz	Feet	Wire	HRO Price
BWD-1.8-30	1.8-30	90	Copperweld	$199.95
BWDS-1.8-30	1.8-30	90	Stainless	$309.95
AC-5-30	5-30	65	Copperweld	$209.95
ACS-5-30	5-30	65	Stainless	$299.95

YAESU

HF Dipole Antenna

YA-30 – $249.95 – HRO Price

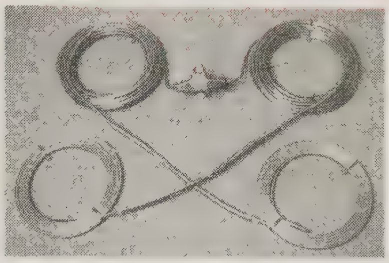
The 83-foot YA-30 broadband dipole antenna is designed to provide optimum performance over the frequency range 1.8-30 MHz. The usual requirements for an antenna tuner between the rig and antenna are eliminated by the unique broadband design. Handles 150 watts at an SWR of less than 1.9:1 on the amateur bands. Preassembled and pretuned. Can be installed as a horizontal flat-top, inverted-V, or sloper. 100 feet of RG-8X with PL-259 included.

HF / VHF / UHF Mobile Antenna

ATAS-100 – $319.95 – HRO Price

The ATAS-100 provides HF/ VHF/ UHF coverage with automatic motorized tuning. Controlled from the transceiver, it adjustes the radiator length for best SWR. **Compatible with Yaesu's FT-100 and FT-847.**

International Antennas



Double Bazooka

Double Bazooka Half Wave Antennas are constructed with a flat-top of 50Ω coax and a section of 300Ω transmission line at each end. The shield is split in the middle, but the center conductor and insulation are left intact. The feedline becomes the radiating element. This results in quiet, broadband operation with 98% efficiency and a 50Ω balanced feedpoint without a balun. Mount it horizontally or as an inverted V. Handles legal RF power limit. Has weatherproofed center insulator, feeds directly with 50Ω with PL-259 connector. The 80M version will operate efficiently on all bands with addition of an antenna tuner (not supplied).

Model	Description	HRO Price
DB-80	3.5 MHz (750-80M) 121 ft long	$139.95
DB-40	7 MHz (40M) 64 ft long	$119.95
DB-160	160 M 248 ft long	$179.95

NEW!

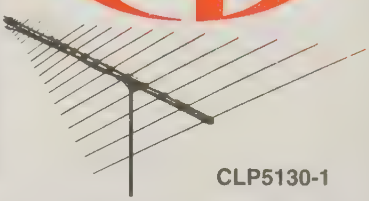
Half Sloper

DOUBLE BAZOOKA HALF SLOPER antennas are extremely broadbanded and can operate efficiently across an entire Ham band with less than 2:1 VSWR. It's a quarter wave length long, constructed from 50Ω coax in combination with a 300Ω transmission line end section. It looks like one-half of the Double Bazooka pictured above. Mount from a tower or vertical metal support for optimum results and feed directly with 50Ω coax with a PL-259 connector. Ground return is accomplished through the metal support. Handles full legal power.

Model	Description	HRO Price
HS-40	32.8 ft long, mount 30-40 ft high, end height 7-10 ft	$105.95
HS-80	65.7 ft long, mount 60-70 ft high, end height 7-10 ft	$115.95
HS-160	127.7 ft long, mount 90-120 ft high, end height 10-15 ft	$140.95

Log Periodic

CREATE



CLP5130-1

The **CLP5130** antennas are high gain, wide band VHF/UHF log periodic beams for horizontally polarized base station use. Covers amateur bands from 50–1300 MHz, FM broadcasting, scanning, VHF / UHF TV, air band communications, government and business bands.

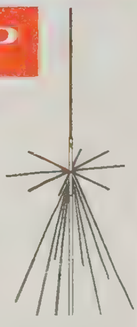
Forward gain is 10 to 12 dB – 10 to 16 times the gain of a nondirectional discone type antenna. The VSWR is less than 2.0:1 across the band.

The high-quality aluminum antennas have a boom design that allows movement of the phasing line. Distortions in the vertical and horizontal planes are minimized and element adjustment is not necessary. The boom-to-mast bracket is made of a lightweight and rugged magnesium alloy.

	CLP 5130-1	CLP 5130-2
Frequency	50-1300 MHz	108-1300 MHz
No. Elements	23	19
Power PEP	500W	500W
Forward Gain	10-12 dBi	10-12 dBi
Front/Back	15 db	15 db
Longest element	9' 10"	4' 6"
Boom length	5' 9"	4' 6"
HRO Price	$449.95	$319.95

DIAMOND ANTENNA

D-130J Super Wideband Discone

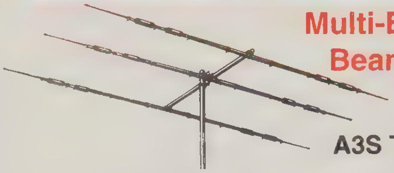


Monitor 25-1300 MHz. Transmit on 50, 144, 430, 1200 MHz. All stainless steel. Input power 200 watts. Impedance: 50 ohms. VSWR: 1.5:1. Length: 1.7 meters. Mounts on 1" to 2" masts. **HRO Price $89.95**

CUSHCRAFT
COMMUNICATIONS ANTENNAS

World Ranger Series

Multi-Band Beams



A3S Tri-Band

The four-element A4S with stainless steel hardware outperforms other beams in day-to-day operation and the tough competition of contests. It has achieved the success of DXCC in only two days. The combination of precisely tuned traps with excellent spacing to element length ratios make the A4S a proven winner. Designed for easy assembly, the A4S is light weight, built to last and has a clean profile to reduce wind load. The A3S, with all stainless steel hardware, is the most popular three element, three-band beam available today. It has plenty of gain and good front-to-back ratio. The A3S can be mounted on a lightweight tower and rotator in a very small space. Rugged design features insure many years of trouble-free operation.

A3S	10, 15, 20 m, 3-element
A4S	10, 15, 20 m, 4-element

HF Director

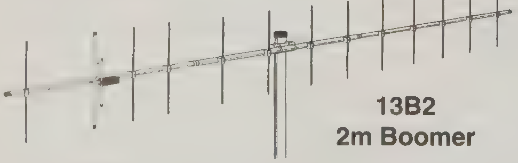
The **MA-5B** multiband HF antenna provides 5 band directivity in a package small enough to be mounted on a tripod. Covers 10,12,17,17 and 20 m with one coaxial feed point. Turn with lightweight TV rotator.

VHF-UHF Tri-Band Yagi

The **A627013S** gives those with limited tower or mast space a directional antenna for the 3 most popular bands, 6m, 2m and 70cm. Operating on a single boom, many problems of degraded antenna performance have been solved.

VHF / UHF Boomers

The Cushcraft Boomer Series of high performance Yagis has been the industry standard for more than two decades. They have established new VHF / UHF distance records and their computer-based design has become the favorite choice for SSB, FM and packet. All boomers have stainless steel hardware.



13B2
2m Boomer

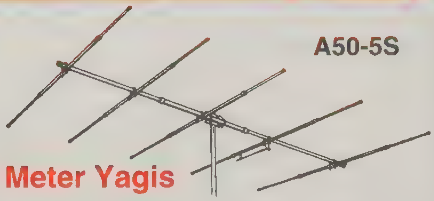
The **13B2** is the best choice for performance across the 2 meter band. Its 15' boom makes it the most popular 2 meter Yagi worldwide.

Big Thunder Tribander

Performance for 10/15/20 m DX

The X7 triband Yagi sets new standards in radiating performance and mechanical reliability. Computer modeling technology has created a superior electrical design with elegant mechanical hardware and assembly techniques. The yagi is designed for 100+ MPH wind survival with a 1.25 safety factor. Traps were eliminated from the driven elements and reflectors using 4L log cell design. Traps on the lower current directors increase gain and sharpen pattern.

VHF / UHF Yagis



A50-5S

6 Meter Yagis

Enjoy the new excitement of the 6 meter band with an S-series yagi. Computer aided modeling and stainless steel hardware were used by Cushcraft to optimize the performance of our popular 6 meter yagis.

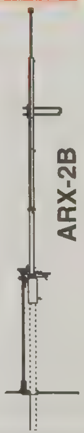
A50-3S	3 element	50-54 MHz	6' boom
A50-5S	5 element	50-54 MHz	12' boom
A50-6S	6 element	50-54 MHz	20' boom

2m / 70cm Dual Band

Increase your range by selecting one of our Cushcraft dual band Yagis. Direct more of your output power when transmitting while reducing interference and increasing signal strength when receiving. Select the antenna for your station depending on your distance requirments.

A270-6S	144-148 / 430-450 Mhz 6 element 2.8' boom 7.8 dB
A270-10S	144-148 / 430-450 MHZ 10 element 6.2' boom 10 dB

Ringo II Base Antennas



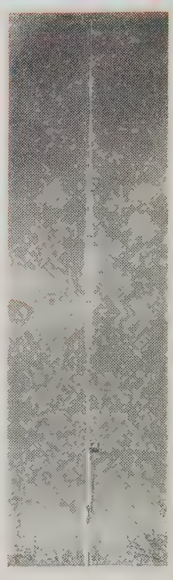
Ringo Ranger II antennas have more gain, less wind load, and better mechanical strength than most other antennas. You'll find FM repeater or simplex and packet operation more satisfying with this amazing antenna. Three 5/8 wave radiating elements and an adjustable 1/8 wave phasing stub give 7 dB gain over a 1/4 wave whip. The antenna has RF decoupling radials and is DC grounded for lightning protection.

ARX-2B	135-160 MHz	14' high
ARX-220B	222-225 MHz	9.3' high
ARX-450B	435-450 MHz	4.9' high

HF Vertical

R8
8 Band Vertical

NEW!



The R8 multiband vertical provides 8 band coverage encompassing 6, 10, 12, 15, 17, 30 and 40 meters. Cushcraft has achieved a major breakthrough in the development of an HF multiband vertical antenna that has been specifically designed for use with a tuner and amplifier.

The R8 is the first multiband vertical designed for the rigors of contemporary operating conditions. Although best operated within it's 2.0:1 VSWR bandwidth, it can sustain a 3.0:1 VSWR mismatch at full power for typical operating intervals. Now the ham can take full advantage of the versatility of a tuner used in conjunction with a multiband HF vertical.

Performance is great. The low angle of radiation gets you through the pile-ups. Automatic frequency selection lets you use the antenna from your apartment, condo, or motorhome.

R6000
20 - 6 Meter Vertical

The R6000 is a 6 through 20 meter, no ground radial antenna and includes many of the R8 features. There are no traps on 6, 10 and 15 meters. Typical gain is 3 dBi and handles 1500 watts.

Cushcraft HF Antennas

Model	Bands	Ele	Fwd Gain dBi	Max F/B dB	Min SWR	Boom Length		Boom Diameter		Longest Ele(Ht)		Turning Radius		Max Mast Dia		Wind Surf Area		Shipping Weight		HRO Price
						FT	M	IN	CM	FT	M	FT	M	IN	CM	SQFT	SQMT	lbs	kg	
X7	20 15 10 meters	7	12.5 20m 13.0 15m	30	1.1:1	18	5.5	2.5	6.4	37.2	11.3	20	6.1	2 1/2	6.4	7.9	0.73	60	27	$499.95
MA-5B	10 12 15 17 20 meters	3	5.3 10m 1.0 12 m 4.8 15m 1.0 17m 3.6 20m	22	1.2:1	7.3	2.2	1.5	3.8	17.5	5.3	8.8	2.7	1 1/2	3.8	3.22	0.3	26.5	12	$299.95
R6000	20 - 10 + 6 meters	1			<1.2:1					28.5	8.7			1 3/4	4.4	1.5	0.14	12.5	5.6	$269.95
R8	40 30 20 17 15 12 10 6m	1	3		<1.3:1					24	7.3							23	10.5	$399.95
A3S	20 15 10 meters	3	8	25	<1.2:1	14	4.3	1.5	3.8	27.8	8.5	15.5	4.7	2	5.1	4.4	0.41	30	13.6	$339.95
A743 Kit	40m for A3				<1.2:1					35	10.7	15.5	4.7	2	5.1	0.06	0.06	7	3.2	$129.95
A3WS	17 12 meters	3	8	25	<1.2:1	14	4.3	1.5	3.8	25	7.6	14.4	4.4	2	5.1	4.1	0.38	26.5	12	$279.95
A103 Kit	30m for A3WS				<1.2:1					32	9.8	14.4	4.4	2	5.1	0.04	0.04	6	2.7	$109.95
A4S	20 15 10 meters	4	8.9	25	<1.2:1	18	5.5	2	5.1	32	9.8	18.4	5.6	2	5.1	5.5	0.51	38	17.2	$419.95
A744 Kit	40m for A4S				<1.2:1					35	10.7	18.4	5.6	2	5.1	0.3	0.03	7.5	3.4	$129.95
ASL2010	20 17 15 12 10 m	8	6.4	20	<1.2:1	18	5.5	2	5.1	38	11.6	19.3	5.9	2	5.1	10.1	0.94	59	26.7	$749.95
TEN-3	10 meters	3	8	25	<1.2:1	8	2.4	1.4	3.5	18	5.5	9.8	3	2	5.1	2	0.19	10.5	4.8	$159.95
XM240	40 meters	2	6	25	1.1:1	22	6.7	2.5	6.3	43	13.1	24.3	7.4	2.5	6.35	5.5	0.51	59	26.8	$519.95
D3	20 15 10 meters	1			<1.2:1					26	7.9	4	1.2	2	5.1	0.9	0.08	11	5	$199.95
D3W	17 12 meters	1			<1.2:1					34	10.4	5	1.5	2	5.1	0.9	0.08	13	5.9	$179.95
D4	40 20 15 10 meters	1			<1.2:1					36	11	5.5	1.7	2	5.1	1.3	0.12	15.5	7	$279.95
D40	40 meters	1			<1.2:1					42	12.8	6.5	2	2	5.1	1.7	0.16	15	6.8	$249.95
AR-10	10 meters	1	3		<1.2:1					17.6	5.4			1 1/4	3.2	1 2/3	0.16	5	2.3	$79.95

Cushcraft VHF / UHF Antennas

Call for Quotes on Cushcraft Antennas Not Shown

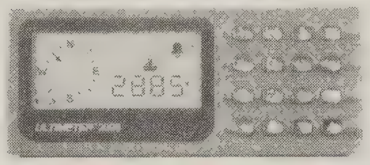
Model	Frequency Coverage	Ele	FWD Gain dBi	Max F/B dB	Conn	Polarization		Boom Length		Longest Ele(Ht)		Turning Radius		Max Mast Dia		Wind Surf Area		Shipping Weight		HRO Price
						Horz	Vert	FT	M	FT	M	FT	M	IN	CM	SQFT	SQMT	lbs	kg	
124-WB	144-148	4	10.2	24	U	Y	Y	4	1.2	3.4	1	4	1.2	2	5.1	0.34	0.03	3.5	1.6	$64.95
13B2	144-148	13	15.8	26	U	Y	Y	15	4.6	3.4	1	8.9	2.7	2	5.1	1.8	0.17	9.5	4.3	$109.95
13B2N	144-148	13		26	N	Y	Y	15	46	3.4	1	8.9	2.7	2	5.1	1.8	0.17	9.5	4.3	$139.95
26B2	144-148	26	18.8	26	U	Y	Y	15	4.6	3.4	1	10.4	3.2	2	5.1	4.8	0.45	25	11.3	$339.95
17B2	144-145	17	18	26	N	Y	N	31	9.4	3.4	1	17.3	5.3	2	5.1	3.9	0.36	18	8.2	$189.95
224-WB	222-225	4	10.2	24	U	Y	Y	3	0.09	2.2	0.7	3	0.9	2	5.1	0.23	0.02	2.5	1.1	$66.95
719-B	430-450	19	15.5	25	N	Y	Y	13.5	4.1	1.2	0.4	7.3	2.2	2	5.1	1.2	0.11	7.5	3.4	$129.95
A50-3S	50-54	3	8	20	U	Y	N	6	1.8	9.8	3	6	1.8	2	5.1	1.8	0.17	8.5	3.9	$94.95
A50-5S	50-54	5	10.5	24	U	Y	N	12	3.7	9.8	3	7.5	2.3	2	5.1	2.7	0.25	13	5.9	$139.95
A50-6S	50-54	6	11.6	26	U	Y	N	20	6.1	9.8	3	11	3.4	2	5.1	4.5	0.42	22	10	$239.95
A148-3S	144-148	3	7.8	25	U	Y	Y	2.8	0.9	3.3	1	2.8	0.9	2	5.1	0.27	0.03	3	1.4	$45.95
A148-10S	144-148	10	13.2	24	U	Y	Y	12	3.7	3.3	1	6	1.8	2	5.1	1.2	0.11	6	2.7	$79.95
A148-20T	144-148	20	13	20	U	Y	Y	10.8	3.3	3.3	1	6.8	2.1	1.5	3.8	1.4	0.13	7.5	3.4	$119.95
A449-6S	440-450	6	10.5	18	U	Y	Y	2.9	0.09	1.1	0.3	2.9	0.9	2	5.1	0.3	0.03	2.5	1.1	$56.95
A430-11S	430-440	11		20	U	Y	Y	4.2	1.3	1.1	0.3	2.8	0.9	2	5.1	0.39	0.04	3.5	1.6	$69.95
A449-11S	440-450	11	13.2	20	U	Y	Y	4.2	1.3	1.1	0.3	2.8	0.9	2	5.1	0.39	0.04	3.5	1.6	$81.95
AR270	144-148	1	3		U		Y			3.75	1.13			2	5.1	0.27	0.03	2	0.9	$69.95
	430-450	1	5.5		U		Y													
AR270B	144-148	1	5.5		U		Y			7.7	2.3			2	5.1	0.47	0.044	2.4	1.09	$99.95
	430-450	1	7.5		U		Y													
A270-6S	144-148	3	10	20	U	Y	Y	2.8	0.09	3.4	1	2.8	0.9	2	5.1	0.3	0.03	3.5	1.6	$59.95
	430-450	3	10	18	U															
A270-10S	144-148	5	7.8	20	U	Y	Y	6.2	1.9	3.4	1	6.2	1.9	2	5.1	0.73	0.07	5	2.3	$88.95
	440-450	5	7.8	18	U															
A627013S	6m,2m,70cm	5	8 6m 10 2m 10 70cm	20	U	Y	Y	8.8	2.56	9.7	3	6.16	1.87	2	5.1	2.52	0.23	9.5	4.3	$169.95
AR-6	50-54		3		U	N	Y			10.1	3.1			1.25	3.2	0.37	0.03	4	1.8	$67.95
AR-2	135-160		3		U	N	Y			3.9	1.2			1.25	3.2	0.21	0.02	2	0.9	$47.95
AR-450	440-460		3		U	N	Y			1.4	0.42			0.75	0.88	0.1	0.01	2	0.8	$39.95
ARX-2	137-160				U	N	Y			9.3	2.8			1.25	3.2	0.33	0.03	2.5	1.1	$46.95
ARX-2B	134-164		7		U	N	Y			14	4.3			1.25	3.2	0.5	0.05	3.5	1.6	$55.95
ARX-220B	220-225		7		U	N	Y			9.3	2.8			1.25	3.2	0.3	0.03	3	1.4	$59.95
ARX-450B	435-450		7		U	N	Y			5	1.5			1	1.5	0.2	0.02	2	0.9	$59.95

WEATHER STATIONS SWL & ATV ANTENNAS

Weather Stations

Ultimeter 800

The Ultimeter 800 has nearly all the features of the Ultimeter 2000 except the barometer. It has wind speed, wind direction, outdoor temperature, indoor temperature, wind chill temperature, time, date, automatic leap year adjustment and automatic scan mode as standard functions. With optional sensors, rain, outdoor humidity, indoor humidity and dew point reading are available. It automatically stores today's and yesterday's highs, lows and total rain fall. It also stores long term highs and lows. Alarms are provided for high wind, high and low outdoor temperature, high and low indoor temperature. The serial port has three output modes. **HRO Price $239.95**

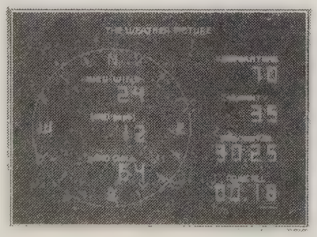


Ultimeter 2000

The Ultimeter 2000 delivers more than 100 weather readings yet it is simple to use. Each key is labeled with an icon that indicates its function. Provides wind speed, barometric pressure, temperature, humidity and rain (optional) information. Gives current data as well as today's, yesterday's and long term highs and lows. I/O port for computer connectivity. **HRO Price $379.95**

Ultimeter 100

The Ultimeter 100 automatically stores today's and yesterday's highs, lows and total rainfall so you can compare the readings. Also stores long term high, low and rain information since it was last reset. Has a 3-mode serial port for interfacing telephone, modem or radio reporting. **HRO Price $189.95**

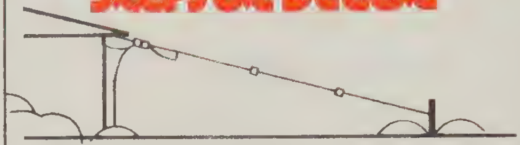


Weather Picture

The Weather Picture receives data from an Ultimeter and continuously displays your pre-selected data. The 8 inch compass rose and big 0.8 inch illuminated red numerals are clearly visible day or night. View even from across the room. **HRO Price $169.95 (aluminum version)**

Shortwave Listening

ALPHA DELTA



DX-SWL

The **DX-SWL** is tuned for the most popular SWL bands (13, 16, 18, 19, 21, 25, 31, 41, 49, 90 and 120 meters). It can be used as a multi-band transmit antenna with the appropriate antenna tuner. Length is 60 feet. Requires a single support. Standard coax connects antenna to your radio. Feed point is 50 ohms. SO-239 connection. **HRO Price $79.95**

DX-ULTRA

The multi-element **DX-ULTRA** has extremely low-noise performance. Tapered wing design allows broadband operation. Configure as dipole, inverted vee, or sloper. Covers MW, tropical, SW, government, military, embassy, maritime, aircraft, and commercial frequencies. 80 feet long. Made with ISO-RES inductors and parallel wire elements. Uses the Delta-C center insulator, Delta-CIN end insulators, and 12 gauge solid copper wire with grey PVC insulation. Elements are separated by grey PVC rod. **HRO Price $109.95**

DYMEK

DA100E Active Antenna

Frequency Coverage: 50 kHz to 30 MHz, continuous.
Height: 4 feet 8" (142cm).
Output Impedance: Switch select 50, 100, 500 ohms.
Attenuation: Switch selectable 0,10, 20 dB.
Power Required: 110-120 or 220-240 VAC switch selectable, 50-60 Hz, 4 watts, or 12 VDC 0.4 Amp.
Dimensions: Antenna Module: 3.75"W x 4.375"H x 2"D (9.5 x 11 x 5cm).
Power Supply: 6.5"W x 3"H x 7.5"D (16.5 x 7.6 x 19cm).
Shipping weight: 9 lbs (4.1 kg).
HRO Price $179.95

Antenna Supermarket

SWL Sloper

The Sloper covers SWL bands from 11-120 meters. Automatic band switching. SO-239 connector for attaching coaxial cable. **HRO Price $79.95**

Eavesdropper™

This high performance trapped dipole for the 11-60 meter SWL bands is 42 feet long. Twin lead or coax models are available. **HRO Price $79.95**

SONY

Active Antenna

AN-1

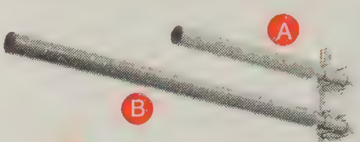
For the SW listener with space problems, the AN-1 has a frequency range of 150 kHz to 30 MHz. Has a low noise FET in the built-in preamp. Built-in attenuator. Requires 6 AA batteries or AC-12 adapter. Antenna can be used inside or outside. Comes with 39 feet of cable. **HRO Price $89.95**

ATV Antennas

NCG NEW!

Amateur Television Antennas

NGC offers a wide selection of directional and omnidirectional antennas for Amateur Television, the license free ISM band, LAN/WAN, data links and wireless internet.



Ⓐ CYA-2412

ATV/ISM Band 2400-2450 MHz
12 Element Yagi
Gain 15.5 dBi
Length: 30 inches
Connector: N-Type
HRO Price: $179.95

Ⓑ X2427

ATV/ISM Band 2400-2450 MHz
27 Element Yagi
Gain: 21 dBi
Length: 60 inches
Connector: N-Type
HRO Price: $229.95

Ⓒ GP-24

ATV/ISM Band 2400-2450 MHz
Omnidirectional
Gain: 15.4 dBi
Height: 5' 10"
Connector: N-Type
HRO Price: $199.95

2 Meter Beams

Swiech
Communications Systems

The **COY2M3EL** is a black anodized, light weight 3 element beam antenna for 2 meters. It provides a 6.1 dB forward gain and an H-plane beam-width of 80 degrees. The bandwidth is 144-148 MHz with an SWR <1.7 at the band edges. Impedance is 50 ohms and it handles 200 watts. A great antenna for packet, public service, camping, T-hunting, Field Day or any portable operation.

COY2M3EL	**HRO Price $64.95**
COY2M4EL	**HRO Price $74.95**

BASE ANTENNAS

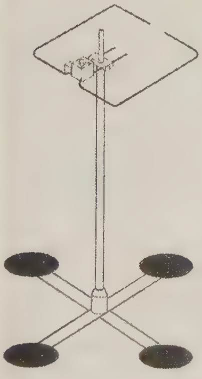
Ventenna™

Can you spot the antenna?

Neither can your neighbors.

At last a solution to antenna restrictions. The Ventenna™ quickly slips over an existing vent pipe and your signal really gets out! It is nearly invisible and is one of the most rugged antennas made. The **VT-27** dual-band is for 2 m and 440 MHz. Single band models are for 2 m, 220 MHz and 440 MHz.

Model	Bands	HRO Price
VT-14	2 meters	**$49.95**
VT-22	220 MHz	**$63.95**
VT-44	440 MHz	**$63.95**
VT-27	2 meter & 440 MHz	**$69.95**



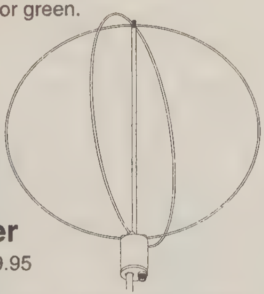
M²

2m HO Loop

Shown with optional mag mount

HRO Price $43.95
Colored versions higher

Nothing satisfies more than our 2m "HO" Loop for horizontal performance. This easily adjustable antenna has plenty of bandwidth. It will handle a KW plus. Stack antennas for more gain. The Loop has durable construction for "tree bashers." Have no weather worries with the bright aluminum standard finish or an anodized finish in gold, black, turquoise or green.



EB-144 2m Eggbeater

HRO Price $129.95

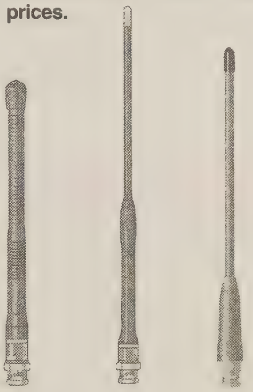
The Eggbeater offers exciting performance characteristics for fixed and mobile operations. It produces smooth omnidirectional horizontal polarity at the horizon. Above the horizon, the pattern transforms to right hand circular off the top making it a natural for OSCAR use. No rotation or steering is required.

HANDHELD ANTENNAS

Kul Duckies & Telescoping Antennas

Larsen

Larsen's line of KulDuckie durable portable antennas are backed with their 3-Year No-Nonsense Warranty. **Call for HRO prices.**



HELICAL (VHF, UHF) **HQ (VHF)** **DUAL BAND**

KulDuckies have outstanding transmit range with 1.5:1 VSWR. Made of copper and brass radiators, they are scope tuned to precise frequencies. Constructed with soldered connections, plastisol dip process, injection molded housings, and silver-plated contacts.

Helical

Helical antennas are approximately 8" in length for VHF and 3" for UHF.

HQ Helical

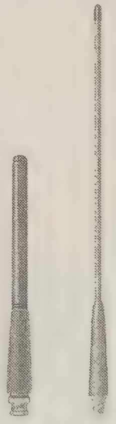
The HQ helical quarter wave antenna offers a higher gain than the regular helical. For VHF only. Length 9-1/2".

Dual Band

Two models cover 2m and 70 cm. Approximate length 8". Model KD3-2/70 has a TNC male connector; Model KD4-2/70 has a BNC male connector.

HW Half Wave

The 1/2-wave allows operation independently of a ground plane. Coils cannot flex and change frequency. HWs have a rigid impedance transformer at the base and a chrome-plated telescoping, black whip with a BNC connector. UHF model length 16-1/2"; VHF model is 11" collapsed and 44-1/2" fully extended.



HW (VHF) **HW (UHF)**

NCG

Triband Handheld Antenna 6 m / 2 m / 70 cm

NEW!

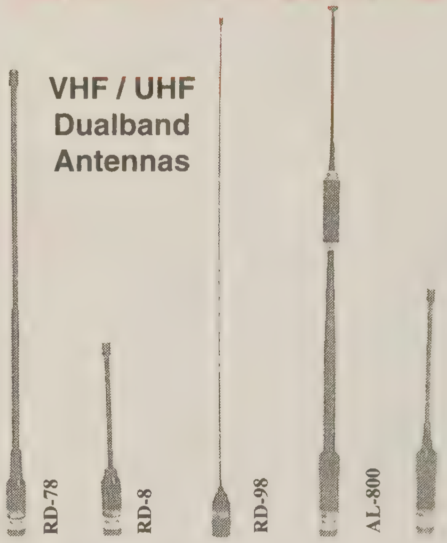
MH-510

$37.95 – Suggested List

Improve stock antenna performance with the MH-510. On 6 m and 2 m it resonates a quarter wave, but on 70 cm it resonates 1-5/8 waves, providing a dramatic improvement in coverage. Gain is 0/0/3.2 dBi. Height of this flexible antenna is 20.75 inches. Especially made with a male SMAconnector for the VX-5R and T-8, it avoids the need for an adaptor.

PREMIER communications

VHF / UHF Dualband Antennas



Premier Antennas

Model	Description	HRO Price
RD-2 SMA	Dual band 2" tall small duck with SMA connector	$19.95
RD-8	Dual-band HT antenna, 6.5" long, flexible, gold plated BNC connector	$17.95
RD-78	Dual-band HT antenna, 15" long, 2.15 dB / 3.2 dB gain, flexible, gold plated BNC connector	$22.95
RD-9 SMA	2M / 440 thin, 7" SMA antenna	$21.95
RD-98	17" long, 1/16" diameter dual-band HT antenna	$24.95
RD-98 SMA	2M / 440 thin, 17" SMA antenna	$27.95
AL-800	Dual-band telescoping antenna, extends to 34", collapses to 10." Whip replaceable with 9" "rat tail" (included), 3.2/5.5 dB gain	$34.95

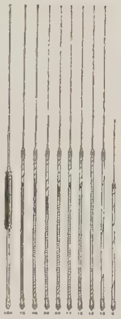
MOBILE ANTENNAS

Valor

THE CLEAR CONNECTION

HF Mobiles

PHF Series Antennas

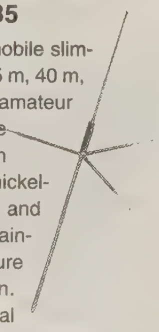


These mono-band PHF mobile antennas consist of a black fiberglass lower section with integral coil and an adjustable (and removable) stainless steel whip (except for the PHF160). These time proven HF antennas are designed for maximum efficiency, low SWR and broad bandwidth. They are power rated at 250 watts PEP and built to withstand considerable use. Standard 3/8x24 threads. Total assembled length on all models 96" (except PHF6 at 58").

Model	Band (meters)	Band Width (kHz)	HRO Price
PHF160	160	12	$79.95
PHF80	80	35	$21.95
PHF75	75	36	$21.95
PHF40	40	60	$19.95
PHF30	30	100	$17.95
PHF20	20	150	$19.95
PHF17	17	175	$19.95
PHF15	15	200	$19.95
PHF12	12	300	$19.95
PHF10	10	500	$19.95
PHF6	6	1000	$17.95

Five-Band HF Mobile

Model AB5



This heavy-duty HF mobile slimline antenna covers 75 m, 40 m, 20 m, 15 m and 10 m amateur bands. Heavy-gauge copper wire wound on 3/8" fiberglass, with nickel-chrome brass fittings and 17-7 taper ground stainless steel whips assure dependable operation. AB5T provides individual tuning for each of the 5 bands for which it is used. when tuned, instant band switching is possible with good VSWR at the reset frequencies for each band. All 5 tunable whips are double locked with stainless steel screws.

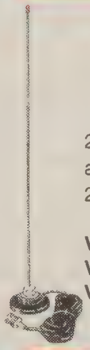
VHF / UHF On Glass

Glassmaster™

Pro-Am's on-glass antennas feature a rugged copper plated whip with black finish and an interior coupler box with adjustable slot to fine tune the SWR. Power rated at 50 watts, they come with 14' of RG58 coax, a PL-259 connector, and mounting package for easy, no hole installation. The GM270 covers 2 meters and 440 MHz.

		HRO Price
GM144	144-146 MHz 2m	$19.95
GM270	2 m / 70 cm Dual Band	39.95

Mag Mount Antennas



MICRO-MAG™

Model VAA-002 (Chrome)
Model VAA-002 (Black)

2m kit with a 17-7 ph stainless steel whip and 12' of cable to a PL-259. Can be cut for 220 or 450 MHz.

		HRO Price
VAA-002	PL-259 chrome	$23.95
VAA-002B	PL-259 black	$23.95
VAA-002BNC	BNC Connector	$27.95

VHF / UHF Dual-Band

Cover-It-All Dual-Band Antenna

Cover It All with a 19" stainless steel whip antenna. Its 1-1/8" threads match Pro-Am mounts and 3/4" hole Motorola TAD/TAE mounts. The antenna covers 144-148 MHz and 435-450 MHz with less than 2:1 SWR. Handles up to 150 watts.

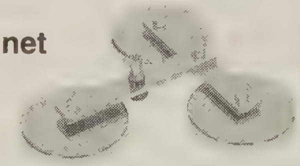
		HRO Price
MO144-440	2m / 70cm Dual Band	$16.95

Magnetic Cover-It-All Dual-Band Antennas

These 2 meter and 70 cm dual band antennas that Cover It All come with magnetic mount and 12' of RG58 cable with BNC or PL259 connector. Black finish.

		HRO Price
PM144-440 BN	BNC Connector	$19.95
PM144-440	PL-259 Connector	$14.95

Maxi-Magnet Mount
Model MM3401



Three 5" magnetics are equally spaced on a heavy dut aluminum frame. Pre-wired to a wafer termination with 17' of RG58 coax and PL-259 connector. For standard 3/8x24 antennas. Available in black as MM3401B **HRO Price $39.95**

Maldol

Hand-Crafted Antennas

Dual Band Mobiles

Models for 2m / 70cm have a black finish. Maximum power for EX-107RB: 80 watts; for SHG-1500B: 200 watts.

Model	Gain	Length	Conn
EX-107RB	2.6/4.9	29"	PL-259
EX-107RBNMO	2.6/4.9	29"	NMO
SHG-1500B	4.5/7.5	59"	PL-259
SHG-1500BNMO	4.5/7.5	59"	NMO

2-Meter Mobiles

Ground independent models are center loaded 5/8 wave. Maximum power: 200 watts.

Model	Gain	Length	Conn
SHG-140	4.1	56"	PL-259
SHG-140NMO	4.1	56"	NMO

Single Band Mobile HF

Ham Sticks®

Ham Sticks® are two-piece monoband antennas consisting of a hollow fiberglass base section and a loading coil wound directly onto the fiberglass and covered with PVC shrink tubing.

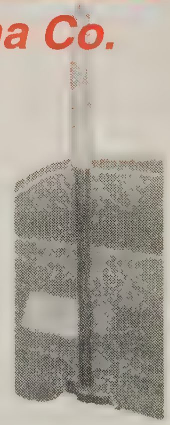
Model	Band	HRO Price
9175	75 m	$24.95
9140	40 m	$24.95
9130	30 m	$24.95
9120	20 m	$24.95
9117	17 m	$24.95
9115	15 m	$24.95
9112	12 m	$24.95
9110	10 m	$24.95
9106	6 m	$24.95

The black oxide brass base fitting has 3/8" X 24 male threads that fit most amateur mobile mounts. The top section is a tapered 17-7 PH tempered stainless steel whip that telescopes into the base section for frequency adjustment. The assembled antenna is about 7' long.

Broadband Mobile HF

T. J. Antenna Co.

Broadbander BB3C All Band Mobile Antenna



The BB3C is an all band (10 through 80 meters) motorized antenna that tunes all bands at the flip of a switch. No more adjusting stingers or changing loading coils to switch bands. The antenna has a motor driven center loading coil that slides up and down inside a copper mast as you change frequency. The top whip may be any length but 102 inches is recommended. The antenna may be used on mobile homes, RV's and even as a fixed antenna. Top whip sold separately. **HRO Price: $299.95**

MOBILE ANTENNAS

OUTbacker®

The Ultimate All-Band HF Mobile Antennas

Perth & Perth Plus Antennas

HRO Prices:
Perth $289.95
Perth Plus $289.95

The Perth covers 10-80 meters and the Perth Plus adds the 6 m and 2m bands. Both are sleek 3-1/2 foot stingers with a 4 foot main shaft where the taps are located. They have a tough, yet flexible fiberglass core, helically wound with copper wire hand tuned to the various "tap" frequency points. Both offer high performance with low wind drag.

Mount them easily on a trunk lip, hatch, or bumper with a standard 3/8 X 24 stud. The stinger retracts into the main shaft for easy stowage. With a proper ground plane, Perth antennas are also suitable for apartment and condo installations.

Outbacker Antenna

HRO Price $269.95

With the Outbacker™ there is no need to change coils when changing HF bands. The antenna comes in a six foot version that handles up to 300 watts PEP and a four foot Junior model for up to 150 watts PEP.

The antennas are made of fiberglass coated with smooth epoxy resin and polyurethane to provide strength, protection and durability. The pre-tuned copper helical winding has connection sockets constructed of rust-free brass and clearly marked for each band. The antenna covers all bands from 10 to 80 meters.

Mount the antenna with a standard 3/8 X 24 thread. Use Hustlers BM-1 or SSM ball mounts. An optional heavy duty spring and 2 inch base can be mounted at the bottom of the antenna and attached to a PL-259 connector.

Outreach Antenna

HRO Price $349.95

- An efficient portable antenna system for those needing limited-space, deed-restricted, backyard, patio, or field-day installations.
- All bands, 160–10 meters, including WARC.
- Only 12 ft. tall!
- Exceptional performance: 10, 12, and 15 meters are 5/8 wave; all bands are center loaded for peak performance. Compare to ANY whip you have used–you'll be AMAZED!
- Handles 150 watts P.E.P.
- Split 8 foot shaft and 4 foot stinger–antenna breaks down to 4 feet for easy portability.
- Terminates in standard 3/8 x 24 base.
- Uses Outbacker's® proven band tap system.

Alpha Delta Outpost™ Tripod / Ground Coupler Ground Mount System

HRO Price $195.95

- Designed to match the base impedance of all Outbacker® antennas.
- Fold-over 3/8 x 24 SO-239 top mount so antenna will be out of view when not in use.
- Constructed of aircraft 6061-T6 aluminum, stainless steel hardware and wing nuts — NO TOOLS REQUIRED.
- No digging–no holes in ground–no concrete.
- Fold-out legs act as a large capacitor providing proper coupling to the ground and proper base impedance to the antenna.
- Fold-up design for 10-minute installation.

ATOC Technologies

Iron Horse HF Antennas

Get home station performance and great HF DXing while on the open road with our monoband HF mobile antennas and mounting kits. These antennas are designed for maximum efficiency, low SWR and broad bandwidth. They are rated at 250 W PEP and built to withstand considerable use. 3/8"x24 thread base.

Model	Description	Bandwidth (kHz)	HRO Price
IHF75	75 m HF Stick	35	$26.95
IHF40	40 m HF Stick	60	$22.95
IHF20	20 m HF Stick	150	$19.95
IHF17	17 m HF Stick	175	$19.95
IHF15	15 m HF Stick	200	$19.95
IHF12	12 m HF Stick	300	$19.95
IHF10	10 m HF Stick	500	$19.95
IHF6	6 m VHF Stick	1000	$19.95
IHKD3S	Quick Disconnect mount kit		$21.95

Model IHF5S is a set of five HF antennas all in one bundle. Set includes 10-15-10-40-75 m antennas. **HRO Price $89.90**

Glass Mounted Antennas

Dual Band and VHF

Each glass mount antenna includes instructions and mounting package. Replacement whips, base and remount kits are available. (NOTE: Some newer automobiles are equipped with "passavated glass" which does not permit on-glass antennas to work properly. Please check your owner's manual or your automobile dealer.)

Model	Antenna Description	HRO Price
ATA270	144-148 and 440-450 MHz. Gain 2.6 dB at 2m and 4.0 dB at 440 MHz over 1/4 wave. Max power 50 W. 14' RG58 cable with PL-259	$23.95
ATA144	144-148 MHz. Gain 2.5 dB at 2m over 1/4 wave. Max power 50 W. 14' RG58 cable with PL-259	$23.95

Mini Mount - VHF / UHF

Model	Antenna Description	HRO Price
IHMM270	144-148 and 440-450 MHz. Magnetic Mount 1-1/8" in diameter. 9' of rg-174 cable with BNC. Height less than 20 inches. 1/4 wave on 2m and 5/8 wave at 70 cm. Black-chrome finished brass ferrule. Max power 25 w 70 cm, 50 w 2m.	$37.95

2 Meter Magnetic Mount Kits

Model	Antenna Description	HRO Price
A002	2 m magnetic mount antennas complete 17-7 ph Stainless Steel Whip, 12' of flex cable with PL-259. Cut for 220 or 250 MHz. Chrome or Black Finish. For Black add "B" after the model number.	$23.95
A002BN	Same as A002 except with a BNC connector.	$23.95

MuleHorse Magnetic Mounts

IH3501 3x5" MuleHorse Magnetic Mount Kit features three 5" magnetics properly spaced on a heavy duty aluminum frame. Prewired with 17' RG-58 and PL-259. Accepts 3/8" x 24 antennas. Triple chrome plated. **HRO Price $49.95**

IH4501 4x5" MuleHorse Magnetic Mount Kit features four 5" magnets properly spaced on a heavy duty aluminum frame. Prewired with 17' RG-58 and PL-259. Accepts 3/8" x 24 antennas. Triple chrome plated. **HRO Price $52.95**

ATMB 3-3/4" diameter black low profile mag mount pre-wired with 12' RG-58 with PL-259 connector. **HRO Price $27.95**

HUSTLER®

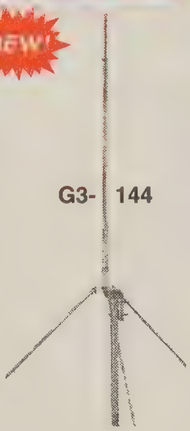
Hustler delivers reliability and performance **Beyond Your Expectations!**

2m Verticals

NEW!

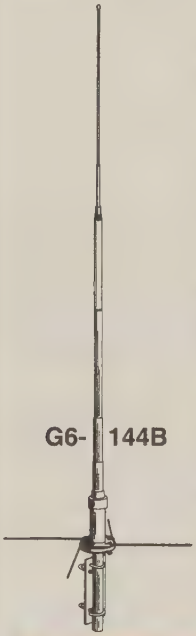
G3-144

At only 7.5', the G3-144 is ideal for use at home or an emergency command post. Features 3 dB gain, omni directional pattern, frequency range 144-148 MHz, 50 ohm feed impedance, maximum power 200 watts, 6 MHz bandwidth, UHF female connector. **HRO Price $59.95**



G7-144

The G7-144 is designed for fixed station or repeater operation. The antenna provides 7dB gain with an extremely low angle of radiation. It is constructed of high strength aluminum and fiberglass using stacked 5/8 wave radiators. Uses a type "N" connector.



G6-144B

The G6-144B is a 6dB gain antenna for base or repeater use. The antenna is totally self supporting and is constructed of high-strength aluminum. Uses an SO-239 connector.

220 & 440 Verticals

G7-220

The G7-220 is of similar design and construction as the 2 meter G7-144. It is designed for base or repeater operation, provides 7dB of gain and is constructed of high-strength aluminum and fiberglass. Uses a type "N" connector.

G6-440

The G6-440 is a 6dB gain antenna for base or repeater usage for the 440 MHz band. It is provided with the vertical component assembled. The antenna is constructed from high-strength aluminum and fiberglass. Uses a type "N" connector.

Multi-band HF

6-BTV / 5-BTV / 4-BTV

Models 6-BTV (10, 15, 20, 30, 40, 75 / 80 meters), 5-BTV (10-80 meters), and 4-BTV (10-40 meters) for base stations. All of these vertical antennas allow full legal limit on SSB or CW. The antennas are constructed of 1 1/4" heavy wall, high strength aluminum. Feed with 50 ohm coax. VSWR 2:1 or better at band edges on 10-40 meters and up to 100 kHz on 75 / 80 meters.

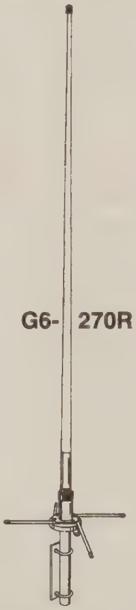
30-MTK

Add the 30 meter band to the 4-BTV or 5-BTV with the 30-MTK. This will provide full band coverage of the 30 meter band and will not affect normal operation of the other bands. The modification is easy to install with all hardware required included. **HRO Price $41.95**

2m / 440 MHz Dual Band

G6-270R

The high performance of the well known G6-144 and G6-440 are combined in the 2 m / 440 dual band vertical, model G6-270R. A sleek, one piece tapered fiberglass radome eliminates the intermodulation and mechanical problems associated with two and three piece UHF radome designs. Made in the U.S.A. of high quality American materials, the G6-270R offers 6 dBd gain (8.1 dBi) on both bands for outstanding fringe area performance. The antenna is shunt-fed and DC grounded for lightning protection and will survive winds to 100 mph. It is factory tuned for quick and easy installation. **HRO Price $169.95**



Electrical

Max. Power:	100 watts
Gain:	6 dBd VHF / UHF
Bandwidth:	2 MHz VHF 10 MHz UHF
Design:	5/8 over 5/8 VHF 4 x 5/8 UHF Shunt-fed D.C. ground
Termination:	Type N female

Mechanical

Length:	100 inches
Weight:	6 lbs
Wind Survival:	100 mph
Mounting:	Hardware included for 1-1/2" mast. Mounting plate will accept 2" U-bolts (U-bolts not included)

Hustler Antennas

Model	Bands	Mx Gn	VSWR	Top Hat lgth in (mm)	Height ft (m)	Boom Dia in (mm)	Max Mst in (mm)	Wind load lbs (kg)	Ship Weight lbs	HRO Price
6-BTV	10-30-80 m	-	1.2:1	20.3 (506)	24 (7.2)	1.3 (31.3)	1.5 (38.1)	31 (14.1)	17	$189.95
5-BTV	10 to 80 m	-	1.2:1	20.3 (506)	25 (7.5)	1.8 (43.8)	1.5 (38.1)	29 (13.2)	17	$159.95
4-BTV	10 to 40 m	-	1.2:1	14.8 (369)	21.4 (6.4)	1.3 (31.3)	1.5 (38.1)	24 (10.9)	15	$139.95
G3-144	2m	3 dB	1.5:1	-	7.5(2.3)	-	1.75 (43.8)		2	$59.95
G7-144*	2 m	7 dB	1.5:1	-	15.3 (4.6)	-	1.8 (43.8)	26 (11.8)	10	$169.95
G6-144B	2 m	6 dB	1.15:1	-	9.8 (2.9)	-	1.8 (43.8)	26 (11.8)	7	$129.95
G7-220*	220 MHz	7 dB	1.2:1	-	10.2 (3.0)	-	1.8 (43.8)	26 (11.8)	7	$169.95
G6-440*	440 MHz	6 dB	2.1:1	-	7.3 (2.2)	-	2.0 (50.8)	22 (10.0)	5	$169.95

* Type "N" Connector

Hustler VHF / UHF Mobile Antennas

Model	Band	Max Gain	SWR	Power	Length ft (m)	Weight lbs	HRO Price
RX-440	440 MHz	5.2 dB	1.2:1	100 W	2.3 (.72)	3	$24.95
CGT-144	2 m	5.2 dB	1.15:1	200 W	7.1 (2.1)	2	$51.95
RX-2	2m	3.4 dB	1.5:1	100 W	4.2 (1.3)	3	$19.95
FX-2	2m	3.4dB	1.5:1	100 W	4.2 (1.3)	3	$33.95
MX-2	2m	3.4 dB		200 W			$34.95
MX-2B	2m	3.4 dB		200 W			$59.95
MX-220	2m	3.4 dB		200 W			$59.95
MX-440	440 MHz	5 dB		200 W			$59.95
MX-270	2m / 440 MHz	2.4 / 4 dB		100 W			$59.95
MX-270B	2m / 440 MHz	2.4 / 4 dB		100 W			$59.95
BBG-144	2m	3.4 dB		200 W			$39.95
BBGT-144	2m	3.4 dB		200 W			$51.95
SF-2	2 m	3.4 dB	1.2:1	100 W	4.2 (1.3)	1	$14.95
UGM	140-500 MHz	Unity	1.2:1	25 W	1.6(.50)	1	$17.95
SF-220	220 MHz	3.4 dB	1.2:1	100 W	2.6 (.78)	1	$14.95

VHF / UHF Mobile Antennas

NEW!

MX Series NMO Magnetic Mount

Features 3.4 dB gain, 200 watts, NMO style magnetic mount. Models for 2 m, 220 MHz, 440 MHz.

Collinear

The CG-144 and CG-220 are 5.2dB gain collinear antennas for 2m and 220 MHz respectively. These antennas mount with 3/8"x24 thread which will fit the standard Huster mounts. The CGT-144 and CGT-220 are supplied with a heavy duty trunk mount, 17' of coax and PL-259 connector.

NEW!

MX Dual Band Series

The dual band antennas for 2m/440 MHz have a gain of 2.4 dB/4 dB. Rated for 100 watts. Base coils are ultrasonically welded. Coils and contacts are silver plated. Available in black. NMO mount.

BBG Series

Models for 2m or 440 MHz have 3.4 dB / 5 dB gain, 200 watts, NMO style coil, swivel ball and spring, 17' RG-58.

5/8 Wave

Hustler manufactures two series of mobile antennas for 2m and 220 MHz and one for 440 MHz. The FX series comes with a heavy duty magnetic mount and the RX series has a standard duty mount. The antennas are base loaded with a 5/8 wave whip. The FX-2, FX-220, RX-2, RX-220 and RX-440 have black bases and chrome whips.

SF-2 / SF-220

These two antennas are for 2m and 220 MHz respectively. Each is a base-loaded 5/8 wave antenna. These antennas will mount to all the Hustler mounts.

UGM Magnetic Mount

A magnetic-mount antenna for the traveller. Trim it to operate as a 1/4 wave on 2m, 220 or 440. The mount is supplied with 7' of mini-coax and a BNC connector installed. Attaches directly to most hand-helds. The antenna has a chrome base and stainless steel whip.

HF Resonators

There are two types of resonators for HF operation. The **standard** units are rated to 400 watts SSB while the **supers** are rated at 1 KW SSB. In addition to the power differences, the usable band width of the Super resonators is 100 percent wider on some bands. See the resonator table below for details.

Mounting HF Mobiles

The HF resonators described require some consideration when mounting.

Mount

A bumper (BM-1) or ball type (C32, SSM-1 or SSM-2) mount is required. Magnetic or trunk type mounts will not hold the weight or wind load.

Mast

All of the resonators must be mounted on top of one of the Hustler masts (MO-1, MO-2, MO-3 or MO-4). The **MO-1** and **MO-2** hinge to allow for travel or low clearances. The **MO-1** is for deck or fender mounting and folds at 15" above the base. The **MO-2** is for bumper mounting and folds at 27" above the base. The **MO-3** is a fixed length mast for use where it will not be necessary to fold over the antenna. The **MO-4** is for installations requiring a short mast – just 22 inches tall. Use standard resonators and whips on 40 and 75 m. Use standard resonators on 10, 15 and 20 meters with the new whips provided with the MO-4.

Hustler Resonators

Model	Type	Band	Power SSB	Bandwidth 2:1 SWR	Weight lbs	HRO Price
RM-10	Standard	10 m	400 W	150-250 KHz	0.41	$15.95
RM-11	Standard	11 m	400 W	150-250 KHz	0.41	$15.95
RM-12	Standard	12 m	400 W	90-120 KHz	0.41	$13.95
RM-15	Standard	15 m	400 W	100-150 KHz	0.42	$15.95
RM-17	Standard	17 m	400 W	120-150 KHz	0.44	$21.95
RM-20	Standard	20 m	400 W	80-100 KHz	0.46	$21.95
RM-30	Standard	30 m	400 W	50-60 KHz	0.84	$24.95
RM-40	Standard	40 m	400 W	40-50 KHz	0.84	$24.95
RM-75	Standard	75 m	400 W	25-30 KHz	1.05	$26.95
RM-80	Standard	80 m	400 W	25-30 KHz	1.05	$26.95
RM-10-S	Super	10 m	1 kW	250-400 KHz	1	$23.95
RM-15-S	Super	15 m	1 kW	150-200 KHz	1.2	$24.95
RM-20-S	Super	20 m	1 kW	100-150 KHz	1.25	$28.95
RM-40-S	Super	40 m	1 kW	50-80 KHz	1.8	$35.95
RM-75-S	Super	75 m	1 kW	50-60 KHz	2.1	$49.95
RM-80-S	Super	80 m	1 kW	50-60 KHz	2.1	$49.95

Mobile Mounts

Trunk Mounts

Three trunk mounts are available (HLM, HOT and TLM). All bases accommodate the 3/8" x 24 thread and come with 17' of low-loss coax with connectors installed. The mounts are for use with VHF and UHF antennas. Do **NOT** use with the HF mobile antennas.

The **HLM** is specifically for hatch and slanted back vehicles. It has a built-in 180 degree adjustable swivel. The **HOT** is an easy on/off base–just spin the knob. It also has a 180-degree swivel. The mount cannot be removed while the trunk is closed. The **TLM** requires no holes to install. It mounts on flat, horizontal surfaces. The **RVM** is for recreational vehicles.

Bumper Mount

Use the **BM-1** bumper type mount with all Hustler mobile antennas including HF. It uses two "J" bolts and a stainless steel strap that will fit bumpers up to 18". It will not fit the molded, plastic bumpers found on some vehicles. The mount comes with a stainless steel ball. Use the L14-144 (12 foot) or L14-240 (20 foot) coax sets to attach directly to the bottom of the ball mount.

Hustler Mounts

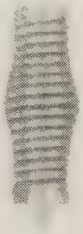
Model	Base Thread	Coax ft (m)	Swival	Weight lb	HRO Price
BM-1	3/8" x 24	optional	180	2	$19.95
HOT	3/8" x 24	17 (5.1)	180	1.9	$29.95
TLM	3/8" x 24	17 (5.1)		1.9	$20.95
HLM	3/8" x 24	17 (5.1)	180	1.7	$22.95
RVM	3/8" x 24	17 (5.1)	180	1.9	$20.95

Other Accessories

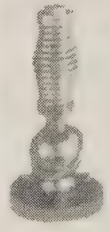
C-32

Hustler has a collection of mounts and accessories for attaching your antennas to your vehicle. The most common are described below.

C-32 Chrome-plated ball mount
C-30 Chrome-plated spring
C-29 Stainless steel spring



C-30



SSM-1

SSM-1 Professional ball mount and spring
SSM-2 Ball mount
SSM-3 Stainless steel spring

L-14-144 Coax lead 12', PL-259 & lugs for Hustler mounts
L-14-240 Coax lead 20', PL-259 & lugs for Hustler mounts

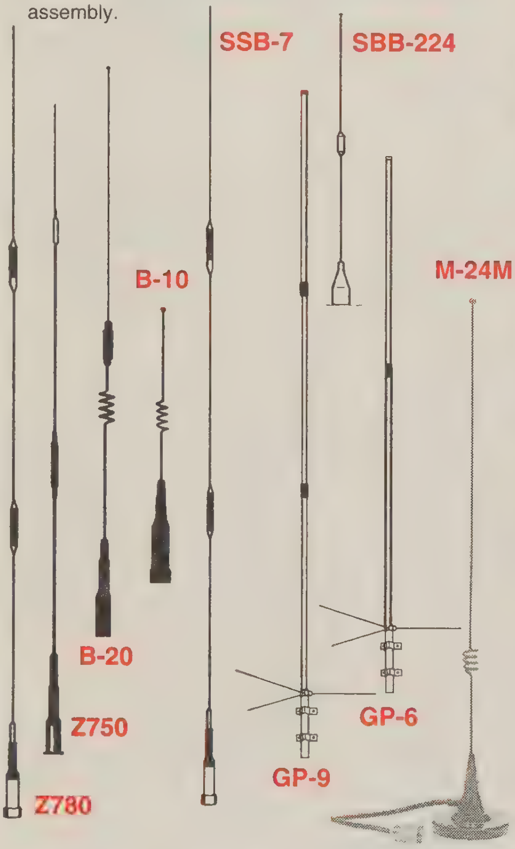
C-32	Chrome Plated Ball Mount	$11.95
SSM-1	Ball Mount and Spring	$46.95
SSM-2	Ball Mount	$26.95
SSM-3	Stainless Steel Spring	$24.95
RSS-2	Resonator Spring	$9.95
QD-2	Quick Disconnect	$19.95

COMET

Dual- & Tri-band VHF / UHF

Comet developed the Super Linear Converter (SLC) to increase actual gain of dual and triband antennas.

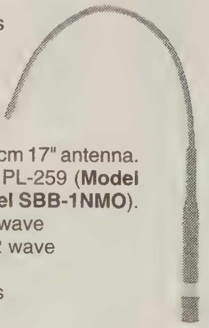
- A complete pre-formed phasing coil and phosphorus copper element eliminates additional components and gain loss.
- The SLC is electrically very efficient, providing a low angle of radiation, directly to the horizon.
- Comet sectional antennas use ABS (Transparent to RF) connecting joints for the finest pattern and easiest assembly.



Dual-Band Mag Mount Antenna

Economical black anodized 2m / 440 MHz antenna is 19.5" tall and comes with 13 feet of RG-58/U coax and either a gold-plated PL-259 (**Model M-24M**) or BNC connector (**Model M-24B**) soldered on.

Gain:	146 MHz 1.7 dBi 3/8 wave
	446 MHz 4.1 dBi 1/4 + 5/8 wave
Max Power:	80 Watts
VSWR:	1.5:1 or less
Impedance:	50 Ohm
HRO Price	**$39.95**



Flexible Dual-Band

Convenient, very flexible 2m / 70 cm 17" antenna. Comes with either a gold-plated PL-259 (**Model SBB-1**) or NMO connector (**Model SBB-1NMO**).

Gain:	146 MHz 1.5 dBi 1/4 wave
	446 MHz 2.15 dBi 1/2 wave
Max Power:	60 Watts
VSWR:	1.5:1 or less
HRO Price	**$39.95**

Comet Dual-Band Antennas

MODEL	BANDS	GAIN	MAX PWR Watts	CONN	WGT Lbs' oz"	LEN FT' In'	MAX WIND SPEED MPH	HRO Price
Dual Band Base Station Repeater Antennas								
GPX-2010	2m/70cm	9.5/13.2	200	SO-239	7'14"	23'4"	65 w/o guys 90 w/guys	$379.95
GP-9/GP-9N	2m/70cm	8.5/11.9	200	SO/N	5'11"	17'8"	90	$179.95
GP-6	2m/70cm	6.5/9.0	200	SO-239	3'8"	10'5"	90	$139.95
GP-3	2m/70cm	4.5/7 2	200	SO-239	2'12"	5'11"	112	$99 95
Dual Band Mobile Antennas - All Black Anodized								
SBB-7/SBB-7NMO	2m/70cm	4.5/7.0	70	PL/NMO	–	4'7"	–	$74.95
SBB-5/SBB-5NMO	2m/70cm	3.0/5.5	120	PL/NMO	–	3'2"	–	$54.95
SBB-2/SBB-2NMO	2m/70cm	2.15/3.8	100	PL/NMO	–	20"	–	$39.95
B-10/B10NMO	2m/70cm	–/2.15	50	PL/NMO	–	12"	–	$39.95
B-20/B20NMO	2m/70cm	2.15/5.0	50	PL/NMO	–	30"	–	$49.95
SB-214W	2m/220MHz	1.7/3.4	100	PL-259	–	2'11"	–	$49.95
CHL-350	10m/6m	–/2.15	200	PL-259	–	7'0"	–	$79.95
NEW Z Series With Theft-Resistant Lock								
Z750	2m/70cm	2.15/5.5	200	PL-259	–	3'3"	–	$49.95
Z780	2m/70cm	4.5/7.2	150	PL-259	–	5'2"	–	$82.95

Comet Tri-Band Antennas

MODEL	BANDS	GAIN	Max Pwr Watts	CONN	WGT Lbs' oz"	LEN FT' In"	Max Wind Speed MPH	HRO Price
TrBand Base Station Repeater Antennas								
GP-15	6m/2m/70cm	3/6.2/8.6	200	SO-239	2'15"	7'11"	90	$149.95
GP-93	2m/70cm/23cm	4.5/7.2/10	200	N-Female	2'8"	5'7"	112	$129.95
GP-98	2m/70cm/23cm	6.5/9.0/13.5	100	N-Female	3'6"	9'4"	90+	$189.95
CX-333	2m/220/70cm	6.5/7.8/9.0	120	SO-239	3'10"	10'2"	112	$169.95
TriBand Mobile Antennas								
SB-15	6m/2m/70cm	2.15/4.5/7.2	120	PL-259	–	4'10"	–	$89.95
SB-97	2m/70cm/23cm	3.0/6.8/9.6	100	N-Male	–	3'3"	–	$79.95
SBB-224	2m/220/70cm	2.15/3.2/5.5	150	PL-259	–	3'1	–	$74 95
SBB-224NMO	2m/220/70cm	2.15/3.2/5.5	150	NMO	–	3'1"	–	$74.95
CA-HV	40/(20)/15/10/6 /2m	HF 0 dBi 2m 3.4 dBi	120 SSB HF 100W FM 6/2m	PL-259	MAX 1'3"	MAX 6'3"	–	$134.95
CA-UHV	40/(20)/15/10/6 /2m/70cm	HF 0 dBi 2m 3.4 dBi	120 SSB HF 100W FM 6/2m	PL-259	MAX 1'3"	MAX 6'3"	–	$139.95
L-14	Opt 20M coil for CA-HV						–	$31.95
L-18	Opt 17M coil for CA-HV						–	$29.95
HA-4S	40/(20)/15/10m	0 dBi	120 SSB 7-24MHz 200W SSB 14MHz	PL-259 /NMO		4'4"	–	$139.95
L-14HS	Opt 20M coil for HA-4S						–	$39.95
L-18HS	Opt 17M coil for HA-4S						–	$39.95

Comet Single Band and HT Antennas

MODEL	BANDS	GAIN	Max Pwr Watts	CONN	LEN FT'In"	HRO Price
Single Band Antennas						
SBB-25/SBB-25NMO	2m	4.1	100	PL-259/NMO	4'8"	$44 95
HT Antennas						
CH-32 MINI Ant	2m/70cm	–	10	BNC	1.75"	$33.95
SMA-501 MINI Ant	2m/70cm	–	10	SMA	1.5"	$29.95
SMA-3	2m/70/23cm	1.2/1.7/3.4		SMA	9.75"	$41.95
SMA-24	2m/70cm	2.15/5.3	20	SMA	17.5	$22.95
BNC-24	2m/70cm		20	BNC	17.5	$22.95
SMA-503	2m/70cm	–	10	SMA	8.5"	$29.95
CH-75	2m/70cm	–/3.2	50	BNC	14.75	$25.95
SH-95	2m/70/23cm	1.5/2/5.5	10	BNC	15"	$34.95

6 Meter Antennas

MODEL	Description	FREQ	GAIN	F/B	Max Pwr Watts	CONN	SWR	LEN FT'In"	HRO Price
CA-52HB4	4 element beam	50-54 MHz	–	19 bD	400 W PEP	SO-239	<1.5:1	10'6 Boom	$99.95
GH-50	Vertical (no radials)	50-54 MHz	2.15	–	60 FM	SO-239	<2.0:1	7'11 Ht	$99.95

Comet High-Power Duplexers and Triplexers

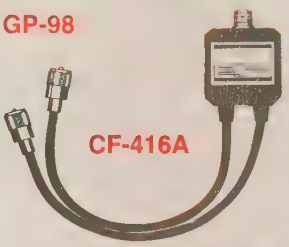
Zinc-alloy, die-cast, twin cavity, low input loss, high-isolation, and high-power. Modernize your station with Comet high-performance antenna products.

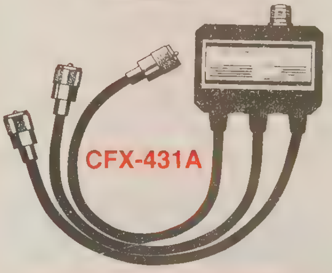
MODEL	PORT	Freq MHz	CW Watts	PEP Watts	Loss dB	Isol dB	Mix Conn	Port Conn	HRO Price
CF-416A (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.15 0.25	60 60	SO-239	PL-259 w/leads PL-259 w/leads	$46.95
CF-416C (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.15 0.25	60 60	N-Female	PL-259 w/leads N-Male w/leads	$49.95
CF-4160I (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.1 0.2	60 60	SO-239	PL-259 w/o leads N-Male w/o leads	$45.95
CF-4160K (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.1 0.2	60 60	SO-239	PL-259 w/o leads PL-259 w/o leads	$45.95
CF-413B (70cm/1.2GHz)	LPF HPF	1.3-150MHz 350-500MHz 840-1.4GHz	450 300 100	800 500 200	0.25 0.25 0.4	55 55 55	N-Female	PL-259 w/leads N-Male w/leads	$74.95
CF-530 (6M/125-470)	LPF HPF	1.3-90MHz 125-470MHz	350 350	600 600	0.2 0.2	45 45	SO-239	PL-259 w/leads PL-259 w/leads	$69.95
CF-360A (10m/6m)	LPF HPF	1.3-30MHz 50-470MHz	350 350	600 600	0.2 0.2	45 45	SO-239	PL-259 w/leads PL-259 w/leads	$69.95
CF-142 (2m/220MHz)	LPF HPF	1.3-1150MHz 200-480MHz	300 200	600 400	0.2 0.3	40 50	SO-239	PL-259 w/leads PL-259 w/leads	$79.95
CF-706 (2m/6m)	LPF HPF	1.3-56 MHz 75-320 MHz	350 350	600 600	0.4 0.4	40 40	SO-239	PL-259 w/cable PL-259 w/cable	$69.95
CFX-431B (2m/70cm/1.2)	LPF BPF HPF	1.6-60MHz 100-150MHz 350-500MHz 840-1.4GHz	600 450 300 100	1KW 800 500 200	0.2 0.2 0.3 0.4	50 50 50 50	N-Female	PL-259 w/leads N-Male w/leads N-Male w/leads	$85.95
CFX-4310B (2m/70cm/1.2)	LPF BPF HPF	1.6-60MHz 100-150MHz 350-500MHz 840-1.4GHz	600 450 300 100	1KW 800 500 200	0.15 0.25 0.25 0.3	50 50 50 50	N-Female	PL-259 w/leads N-Male w/leads N-Male w/leads	$79.95
CFX-4310C (2m/70cm/1.2)	LPF BPF HPF	1.6-60MHz 100-150MHz 350-500MHz 840-1.4GHz	600 450 300 100	1KW 800 500 200	0.15 0.25 0.25 0.3	50 50 50 50	N-Female	PL-259 w/leads N-Male w/leads N-Male w/leads	$79.95
CFX-514 (6m/2m/70cm)	LPF BPF HPF	1.3-90MHz 130-200MHz 380-500MHz	450 450 300	800 800 500	0.2 0.25 0.3	55 55 55	SO-239	PL-259 w/leads PL-259 w/leads PL-259 w/leads	$79.95
CFX-514J (6m/2m/70cm)	LPF BPF HPF	1.3-90MHz 130-200MHz 380-500MHz	450 450 300	800 800 500	0.15 0.2 0.25	55 55 55	SO-239	SO-239 w/o leads SO-239 w/o leads SO-239 w/o leads	$79.95
CFX-324A (2m/220/70cm)	LPF BPF HPF	1.3-150MHz 200-320MHz 390-500MHz	350 350 350	600 600 600	0.2 0.25 0.3	40 40 40	SO-239	PL-259 w/leads PL-259 w/leads PL-259 w/leads	$88.95
CFX-324B (2m/220/70cm)	LPF BPF HPF	1.3-150MHz 200-320MHz 390-500MHz	350 350 350	600 600 600	0.2 0.25 0.3	40 40 40	SO-239	PL-259 w/o leads PL-259 w/o leads PL-259 w/o leads	$85.95

GP-98

CFX-4310C

CF-4160K

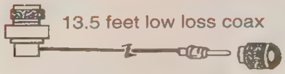

CF-416A


CFX-431A

Comet Mobile Mounting Systems

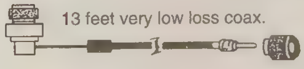
Comet has a wide variety of mobile mounts. Choose the mount and coax cable assembly that best fits your personal needs. All Comet cables have detachable connectors.

MODEL	DESCRIPTION	HRO Price
3D4M	Standard coax assy. 13ft low loss (3.5mm) coax w/UHF Connectors	$24.95
3D4N	-Ditto- But with N-Type Connectors	$28.95
CK-3M5	17ft high quality cable inc 12" RG-188 to avoid water leak/cable damage. UHF Conn.	$39.95
CK-5N	-Ditto- But with N-Type Connectors	$47.95
5D4N	13ft VERY low loss (5mm) cable assy. For 1.2GHz. N-Type Connectors	$31.95
	The following Mounts are w/o Coax. Choose from the Cable Assembly Above.	
RS-520	Small/Heavy Duty Trunk/Hatch Mount	$29.95
RS-720	Multi-Purpose Mount, Trunk-Lip/Hatch-Back, Black, Adj to any position	$29.95
RS-720NMO	Multi-Purpose Mount, Trunk-Lip/Hatch-Back, Black, Adj to any position, accepts NMO mount	$29.95
RS-9	Trunk-Lip Mount, Black. For small antennas. (B-10, B-20, CHL-23J, etc)	$11.95
CM-5M	Standard Hvy-Duty Mag Mt w/RG-58A/U, Coax, UHF Conn, Max Antenna Height 4ft	$24.95
GR-5M	Deluxe trunk-lip mount w/CK-3M5 Cable, UHF connectors	$67.95
GR-5N	Deluxe trunk-lip mount w/CK-5N Cable, N-Type connectors	$69.95



3D4M(N) Detachable Connector

RG-188 provides easy entry into the vehicle from an exterior mount.



10 inches RG-188 CK-3M5/CK-5N Detachable Connector

Free UPS Brown Shipping on Most Orders Over $100.

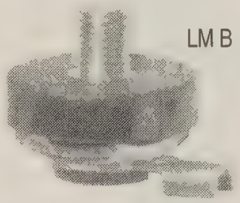
Larsen

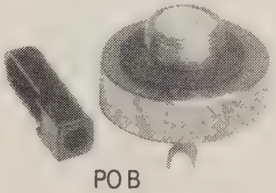
Choosing Your Larsen Mobile Antenna

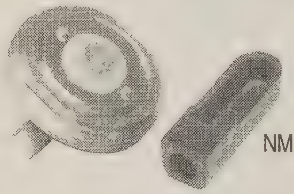
Choose your antenna configuration based on the frequency, base type (e.g., magnetic mount) and thread type (e.g., NMO). Keep in mind that it is necessary to select a base with the same mounting style as the antenna. Typical bases and styles are shown below.

Thread Types

These are examples of each of the thread types. Select one and then select the base.


LM B

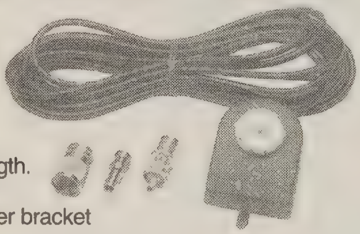

PO B


NMO B

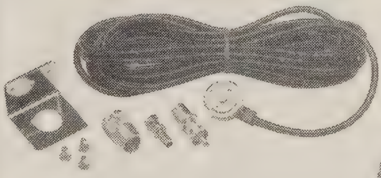
Mount Configurations

In addition to the popular Motorola 3/4" (NMO) mounts shown here, mobile antennas for the Larsen mount (LM) and PO mount (PO) are excellent choices for amateur use. Each of these mounts comes in one of the thread types.

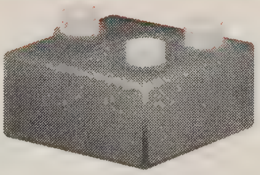
NMO TLP



Mounts:
NMO K premium quality rooftop.
NMO MM mag mount, 90# pull strength.
NMO TLP heavy duty trunk lid.
NMO TMB electropolished trunk gutter bracket


NMO TMB

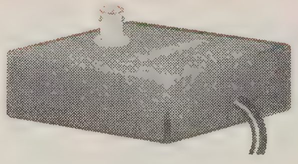
NMO MM R



Duplexer

AD 2 / 70 VHF / UHF Duplexer

Useable Bandwidth:	VHF 120-230 MHz
	UHF 320-500 MHz
Crossover Frequency:	283 MHz
Suppression:	VHF @ 450 MHz 50 dB
	UHF @ 150 MHz 60 dB
Impedance:	50 Ohm nominal all ports
Power:	100 Watts
Insertion Loss:	0.3 dB
Connectors:	SO-239 all ports



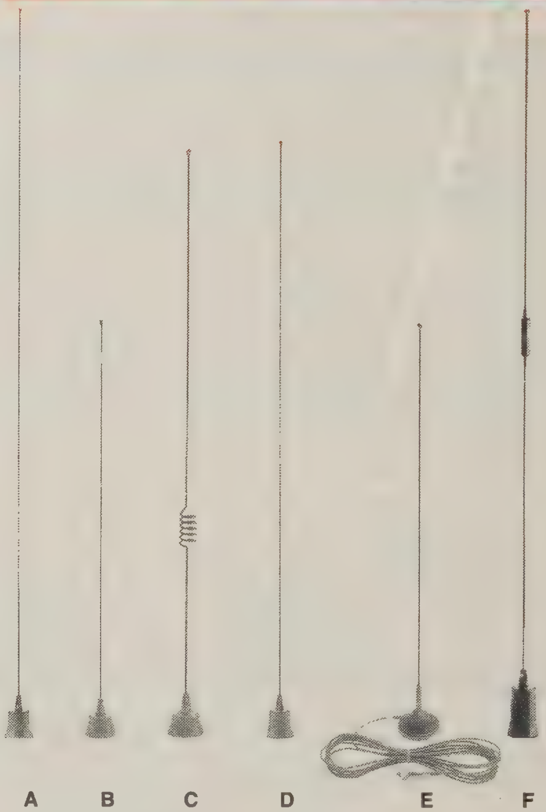
Magnetic Mount

BNC MM BNC

Connectors: BNC on the mag and coax. Coax: RG 58 A/U, 12'

Rubber Ducks On Page 95

NMO Series Antennas



Once the base and thread type are selected, the final step is to choose the antenna. Gain antennas are made of a coil and a whip. Quarter wave antennas are just a whip. All Larsen mobile antennas meet the industry's most demanding specs for electrical efficiency and mechanical durability.

- VSWR at 1.5 to 1 or less.
- Colors: Black coil base; chrome or all black whip.
- 3-year No-Nonsense Warranty.™
- Made in USA

Ⓐ NMO 150 B (2m)

Frequency:	144-174 MHz
Gain:	3 dB
Electrical:	5/8 Wave
Height:	49"

Ⓑ NMOQ C

Frequency:	144-448 MHz
Gain:	Unity
Electrical:	1/4 Wave
Height:	22" max.

Ⓒ NMO 440 B (70cm)

Frequency:	440-460 MHz
Gain:	3 dB
Electrical:	5/8 over 1/4
Height:	30"

Ⓓ NMO 220 B (1.25m)

Frequency:	220-225 MHz
Gain:	3 dB
Electrical:	5/8 Wave
Height:	32"

Ⓔ MS 144 FME

Frequency:	144-148 MHz
Gain:	Unity
Power:	35 watts
Electrical:	1/4 Wave
Base:	2" Mini Mag
Height:	22"
Coax:	12' RG 174
Connector:	FME Universal

(Adapters available in BNC, PL, MPL, SPIN SMA, TNC)

Also available in MS220 FME, MS440 FME.

Ⓕ NMO 2 / 70

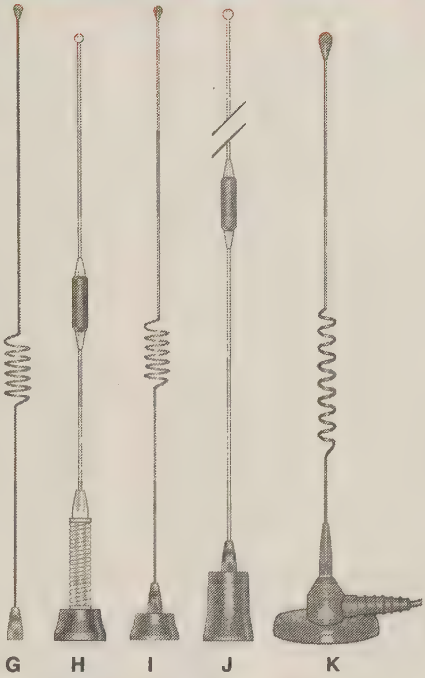
Frequency:	144-148MHz
	442-448 MHz
Gain:	4 dB VHF; 2.4 dB UHF
Electrical:	5/8 wave VHF
	Collinear UHF
Height:	2m / 70cm Dual band

MOBILE ANTENNAS

Dual-Band Antennas

Larsen dual band antennas provide excellent performance on 2m and 70 cm. Each antenna is factory preset to guarantee optimal performance with no tuning required.

- Range of dual band configurations are available.
- Kulrod copper-plated 17-7 stainless steel rods for greater transmit range.
- Soldered contacts.
- Premium materials and construction provide superior electrical performance and mechanical durability.
- VSWR 1.5:1 or less.
- 3-year No Nonsense Warranty.



G LMC 2 / 70 B

Frequency: 144-148/440-450 MHz
Gain: .... Unity
Power: .... 100 Watts
Type: VHF: Center load 1/4 wave
.... U HF: Center load 3/4 wave
Base: .... Q CONE LMC B
Height: .... 18"

H NMO 2 / 70 SH

Frequency: 144-148/440-450 MHz
Gain: .... Unity
Power: .... 100 Watts
Type: VHF: Center load 1/4 wave
.... UHF: Center load 3/4 wave
Base: NMO UHF base B w/spring
Height: .... 17"
Whip: .... W NMO 2/70 SH

I NMOQ 2 / 70 B

Frequency: 144-148/440-450 MHz
Gain: .... Unity
Power: .... 100 Watts
Type:V .... VHF: Center load 1/4 wave
.... UHF: Center load 3/4 wave
Base: .... NMO UHF base B
Height: .... 18"
Whip: .... W NMOQ 2/70 B

J NMO 2 / 70 C

Frequency: 144-148/440-450 MHz
Gain: .... 2.4/4 dB
Power: .... 100 Watts
Type: .... 5/8 Wave; Collinear
Base: .... NMO 2/70 BCO
Whip: .... W 2/70
Height: .... 36 3/4"

J NMO 2 / 70 B

Frequency: 144-148/440-450 MHz
Gain: .... 2.4/4 dB
Power : .... 100 Watts
Type: .... 5/8 Wave; Collinear
Base: .... NMO 2/70 BCO
Whip: .... W 2/70 B Open coil
Height: .... 33 1/2"

K MM 2 / 70 PL

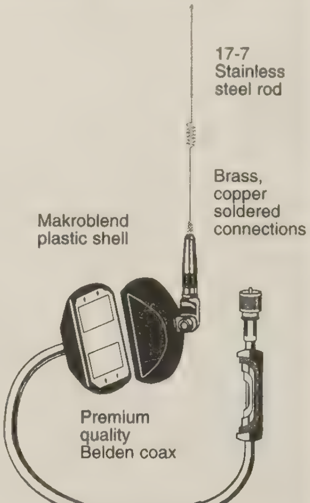
Frequency: 144-148/440-450 MHz
Gain: .... Unity
Power: .... 100 watts
Coax: RG58 A/U Dual Shield, 12'
Pull strength: .... 54 lbs.
Type: VHF: Center load 1/4 wave
.... UHF: Center load 3/4 wave
Base: ...... 3" round magnet mount
Connector: .... PL 259 installed
Weight: .... 1 lb.
Height: .... 17"

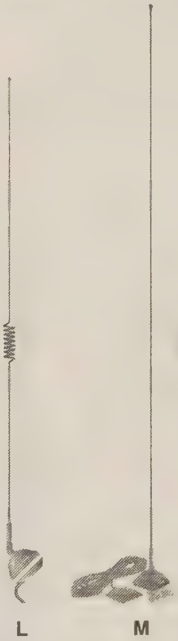
Call Toll-Free for Quotes on Larsen Antenna

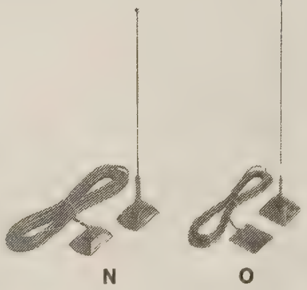
On-Glass Antennas

Larsen's advanced design techniques in glass-mount antennas result in superior transmit range plus tremendous mechanical durability. Glass mount performance is nearly identical to rooftop mounts, with no holes to drill. Properly installed on-glass antennas grip for years under demanding conditions, yet are easy to remove and remount..

- Patented low-impedance design is electrically efficient.
- Single-band antennas are precut, 1/2 wave design.
- Transformer outside vehicle.
- Copper plated whips.
- Rated 50 watts output.
- VSWR at 1.5 to 1 or less.
- Less than .5 dB loss through glass vs. rooftop.
- New circuit board technology locks in solid state performance.
- 3M's best on-glass adhesive grip.
- Made in USA with 3 year No-Nonsense Warranty™


17-7 Stainless steel rod
Brass, copper soldered connections
Makroblend plastic shell
Premium quality Belden coax





Dual-Band

The KG 2 / 70 is a VHF half-wave and a UHF collinear. It comes with 14 feet of RG-58/U coax. The antenna installs easily on any flat surface. Remove the whip without tools for car washes or low garages. **HRO Price $84.95**

L KG 2/70-CX-PL (Dual)

Frequency: 144-148/442-448 MHz
Gain: .... 2.4 dB VHF; 4.5 UHF
Power: .... 50 Watts
Type: .... 1/2 wave / Collinear
Connector: .... PL 259 (loose)
Height: .... 32-3/4"

Single Band

M KG 144 PL (2m)

Frequency: .... 144-160 MHz
Gain: .... 2.4 dB
Type: .... 1/2 Wave
Connector: ..... PL 259 (loose)
Height: .... 45"

N KG 440 PL (70cm)

Band: .... 440-460 MHz
Gain: .... 2.4 dB
Type: .... 1/2 Wave
Connector: ..... PL 259 (loose)
Height: .... 11-3/4"

O KG 220 PL (1.25m)

Band: .... 220-224 MHz
Gain: .... 2.4 dB
Type: .... 1/2 wave
Connector: ..... PL 259 (loose)
Height: .... 24"

DIAMOND ANTENNA

The Standard by Which All Others are Judged

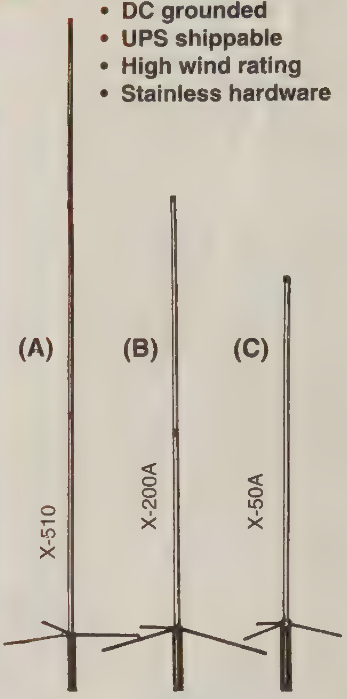
- Wide-band performance
- Highest gain
- Fiberglass radome
- Factory adjusted
- DC grounded
- UPS shippable
- High wind rating
- Stainless hardware

Diamond Base Antennas

All base antennas grounded for lightning protection. Factory adjusted for American amateur bands; no tuning required.

Model	Bands	Gain, dB	Watts	Conn.	WT (lbs)	Lth (ft)	MPH (no ice)	Fig	HRO Price
CP-22E	2 m	6.5	200	UHF	3	9	90	B	$59.95
DP-GH62 [2]	6 m	6	200	UHF	7	21	80	B	$139.95
F-22A	2 m	6.7	200	UHF	5	10.5	112	B	$99.95
F-23A	2 m	7.8	200	UHF	8	15	90	A	$129.95
F-718A [1]	70 cm	11.5	250	N	5	15	90	A	$199.95
U200A	70 cm / 23 cm	8.3/11.7	100	N	3	6	135	C	$129.95
U5000	2m /70 / 23cm	4.5/8.3/11.7	150	N	3	6	135	C	$129.95
V2000A [2]	6m / 2m / 70cm	2.1/6.2/8.4	150	UHF	4	8.3	110	B	$149.95
X-50A	2 m / 70 cm	4.5/7.2	200	UHF	3	5.6	135	C	$99.95
X-50NA	2 m / 70 cm	4.5/7.2	200	N	3	5.6	135	C	$99.95
X-200A	2 m / 70 cm	6.0/8.0	200	UHF	4	8.3	112	B	$139.95
X-510NA	2 m / 70 cm	8.3/11.7	200	N	5	17.2	90	A	$189.95
X-510MA	2 m / 70 cm	8.3/11.7	200	UHF	5	17.2	90	A	$189.95
X-500HA	2 m / 70 cm	8.3/11.7	200	UHF	7	17.8	90+	A	$249.95
X-500HNA	2 m / 70 cm	8.3/11.7	200	N	7	17.8	90+	A	$249.95
X-700HNA	2 m / 70 cm	9.3/13.0	200	N	12	24	90	-	$399.95
X-700HA	2 m / 70 cm	9.3/13.0	200	UHF	7	24	90	-	$399.95
X-2200	2 m /1-1/4 m	6.0/7.8	200	UHF	4	10.6	112	B	$169.95
X-3200A [3]	2m/1-1/4m/70cm	6.0/7.8/8.0	100@	UHF	4	10	112	B	$209.95
X-6000A	2m / 70 / 23cm	6.5/9.0/10.0	100	N	5	10	112	B	$199.95

1. F718: 440-450; F718J: 430-440: F718L: 420-430.
2. 52-54 MHz only. DPGH62 is adjustable from 50-54 MHz.
3. 146-148 MHz, 100 watts on 2m, 200 watts on 1-1/4m & 70 cm.

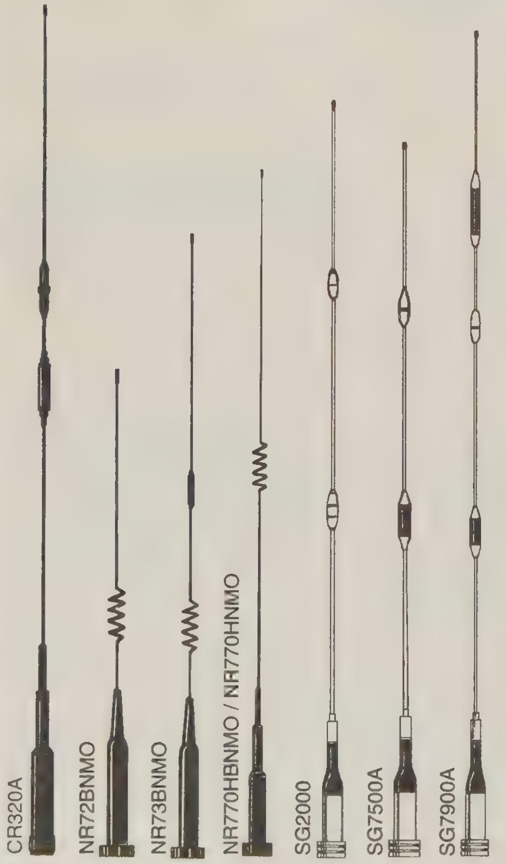


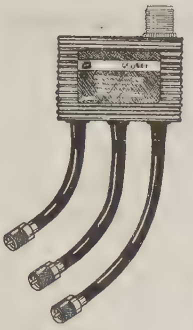
Diamond Mobile Antennas

Factory adjusted for American amateur bands, no tuning required. Mobile antennas have foldover feature with spring loaded hinge (except NR770SA, NR72BNMO, NR73BHNMO). Magnetic mount not recommended for antennas over 50".

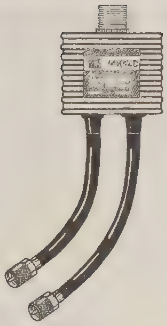
Model	Bands	Gain/dB	Watts	Mount	Lth/in	HRO Price
NR-124	23 cm	8.4	100	N	25	$59.95
SG-2000HD	2 m	5.2	250	UHF	62	$89.95
CR-224A [4]	2 m/1 -1/4 m	5.0/6.0	200	UHF	68	$89.95
CR-320A [#,4,6]	2 m/1 -1/4 m/70cm	2.1/3.8/5.5	100@	UHF	36	$82.95
CR-627B [#,4,5]	6m/2m/70cm	2.1/4.5/7.2	150	UHF	60	$99.95
CR-627BNMO [#,4,5]	6m/2m/70cm	2.1/4.5/7.2	150	NMO	60	$99.95
NR-2C	2m	4.1	150	UHF	55.5	$39.95
NR-72BNMO [#,4]	2 m/70 cm	2.1/2.1	100	NMO	14	$41.95
NR-73BNMO [#]	2 m/70 cm	2.1/5.3	100	NMO	33	$57.95
NR-770HA	2 m/70 cm	3.0/5.5	200	UHF	40	$56.95
NR-770HNMO	2 m/70 cm	3.0/5.5	200	NMO	41	$56.95
NR-770HB [#]	2 m/70 cm	3.0/5.5	200	UHF	40	$59.95
NR-770HBNMO [#]	2 m/70 cm	3.0/5.5	200	NMO	41	$59.95
NR-770R	2 m/70 cm	3.0/5.5	200	UHF	39	$51.95
NR-2000NA	2 m/70/23 cm	3.1/6.3/9.7	100	N	39	$89.95
SG6000NMO [4,5]	6 m	2.15	150	NMO	39	$64.95
SG7000A [4]	2 m/70 cm	2.1/3.8	100	UHF	18	$73.95
SG7500	2 m/70 cm	3.5/6.0	150	UHF	41	$79.95
SG7500NMO	2 m/70 cm	3.5/6.0	150	NMO	42	$79.95
SG7900	2 m/70 cm	5.0/7.6	150	UHF	62	$99.95

[#] Black anodized finish
4. Magnetic mounts not recommended. Vehicle ground required.
5. 52-54 MHz only. 6. 100 watts on 1-1/4m; 200 watts on 2m and 70cm.

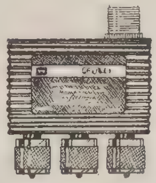




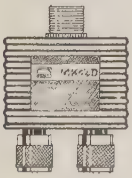
MX324
MX-2000
MX-3000
MX-3000N



MX-37
MX-72H
MX-72N
MX-214



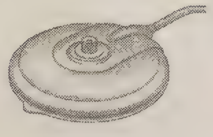
MX-324D
MX-2000D
MX-3000D



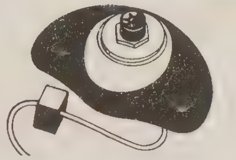
MX-72D
MX-214D

Diamond Duplexers and Triplexers

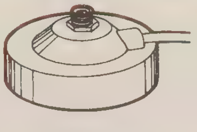
Model	Port	Freq MHz	CW Watts	PEP Watts	Loss dB	Isol. dB	MIX Conn.	Port Conn.	HRO Price
MX-37	LPF HPF	1.6 - 470 900 - 1300	100 50		.25 .25	45 45	N-Jack (F)	UHF-Male/12" cable N-Male/12" cable	$64.95
MX62M	LPF HPF	1.6 - 56 76 - 470		600 600	.3 .3	50 50	SO-239	PL-259/12" cable PL-259/12" cable	$74.95
MX-72D	Similar to MX-72H, but Direct Connection								$43.95
MX-72H	LPF HPF	1.6-30 140-150 440-460	400 150 100	1KW 400 250	.1 .1 .2	60 60 60	SO-239	PL-259/12" cable PL-259/12" cable	$46.95
MX-72N	Similar to MX-72H, but type-N on UHF port								$49.95
MX-214D	Similar to MX-214, but Direct Connection								$68.95
MX-324	LPF BPF HPF	1.6-60 220-225 400-550		800 600 500	.3 .4 .4	40 40 40	SO-239	PL-259/12" cable PL-259/12" cable PL-259/12" cable	$99.95
MX-324D	Similar to MX-324, but Direct Connection								$99.95
MX-2000	LPF BPF HPF	1.6-60 110-170 300-950		800 800 500	.15 .20 .25	60 60 60	SO-239	PL-259/12" cable PL-259/12" cable PL-259/12" cable	$84.95
MX-2000D	Similar to MX-2000, but Direct Connection								$79.95
MX-3000	LPF BPF HPF	1.6-160 350-500 850-1300		800 400 200	.15 .25 .30	55 55 55	N-Jack(F)	PL-259/12" cable PL-259/12" cable N-male/12" cable	$79.95
MX-3000N	LPF BPF HPF	1.6-160 350-500 850-1300		800 400 200	.20 .30 .40	55 55 55	N-Jack(F)	PL-259/12" cable N-Male/12" cable N-male/12" cable	$85.95



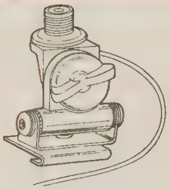
K702M



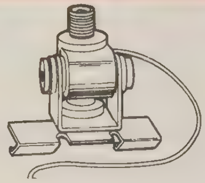
K600M



SPM35
SPMNMO
DPK4NM-M



K412C
K412CNMO

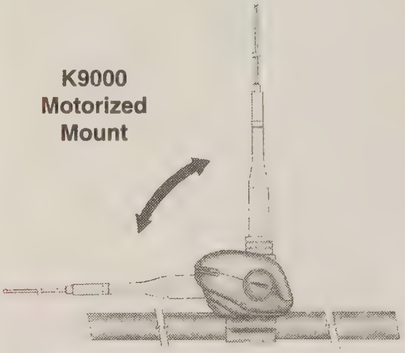


K400C
K400CNMO
K400N, K400-3/8C

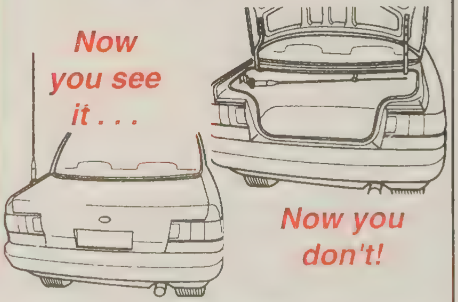
Diamond Mobile Mounts

Model	Description	HRO Price
C101	UHF base 6.5' RG316 Teflon coax w/PL259	$29.95
C101NMO	NMO base 6.5' RG316 Teflon coax w/PL259	$29.95
C110BNC	10' rg316 cable extension with BNC. For front radio installations	$22.95
C110	10' mini-8/RG8X cable extension for front radio installation	$14.95
C211	Combination of C101 and C110. 16.5 feet cable assembly	$39.95
C213	UHF base, 13.5' RG316 Teflon Coax with PL-259	$37.95
C213NMO	NMO base, 13.5' RG316 Teflon Coax with PL-259	$44.95
DPK-4NM-N	Type N Magnet. 13' 5mm coax w/Type-N plug. Good to 1300 MHz.	$45.95
K200KM	Black trunk/hatchback mount with fold over feature. 16.5 feet RG-58A/U w/PL-259	$62.95
K400-3/8C [7]	Special mount for 3/8X24 thread Antenna. 6.5 feet RG316 w/PL-259	$69.95
K400C [7]	Deluxe mount with UHF type base. 6.5 feet RG-316 Teflon coax w/PL-259	$69.95
K400N	Deluxe mount with type-N base. 13.5 feet RG316 Teflon coax w/type-N connector	$74.95
K400CNMO [7]	Deluxe mount with NMO type base. 6.5 feet RG316 Teflon coax w/PL-259	$69.95
K412C	Light Duty trunk/hatchback mount. UHF base, 6.5'Teflon coax w/PL-259. 45" max ant	$64.95
K412CNMO	Light Duty trunk/hatchback mount. NMO base, 6.5'Teflon coax w/PL-259. 45" max ant	$64.95
K540KM	Deluxe Mirror/Luggage rack mount. Black, adjustable. 16.5' RG58A/U w PL259	$59.95
K550KM	Deluxe mini van luggage rack mount. Black, adjustable. 16.5' RG58A/U w PL259	$69.95
K600M	Tilt angle (0-9 degrees) trunk mount. Black. RG-188 and low loss 7 mm cable.	$57.95
K601M	UHF hideaway trunk mount. 6.5 feet RG316 Teflon coax w/PL-259	$69.95
K601NMO [7]	NMO hideaway trunk mount. 6.5 feet RG316 Teflon coax w/PL-259	$69.95
K702M	Deluxe low-profile magnet/suction mount. 6.5" diameter, 13' RG58 & PL-259	$49.95
K9000LRM	Motorized mount for luggage rack. Use C-series cable assemblies	$104.95
K9000TM	Motorized mount for trunk lid. Use C-series cable assemblies	$104.95
SPM35	UHF type base on heavy 1.5 lb/4" magnetic, 13' 5mm coax/PL-259.	$39.95
SPMNMO	NMO type base on heavy 1.5 lb/4" magnet, 13' 5mm coax with PL-259	$44.95

K9000 Motorized Mount



K601M / K601NMO



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7. Use C110 for front radio installations

ANTENNAS & MOUNTS

DIAMOND ANTENNA

HV7A Mobile Antenna System

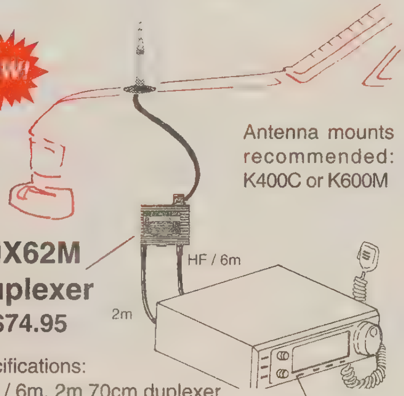
For New HF / VHF Tranceivers (such as: IC706 series and FT100)

The HV7A has 6 band capability: 70cm, 2m, 6m and 2 HF bands through use of Loading Coils. Fold-over feature allows for easy access into low overhead buildings.

Bands Supplied:	10m / 6m / 2m / 70cm
Opt. Loading Coils:	40m / 20m / 17m / 15m
Power, P.E.P.:	HF 120w / VHF 200w
Mount Connection:	UHF
Length:	54" (HV7A)
SWR:	1.5:1 nominal
HV7A Price:	**$109.95**

NEW!

NEW!



Antenna mounts recommended: K400C or K600M

MX62M Duplexer
$74.95

Specifications:

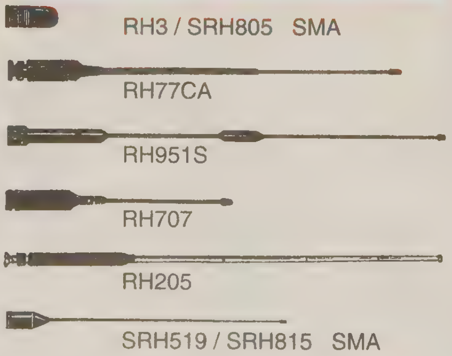
- HF / 6m, 2m 70cm duplexer.
- 1.6–56 MHz LPF
- 76–470 MHz HPF
- (76-120 receive only)
- Watts: 600 P.E.P.
- Loss: .2 dB LPF
  .3 dB HPF
- Isolation: 50 dB

Use with HF/ VHF mobile transceivers such as the IC-706 series, FT-100 or combine 2m and HF rigs.

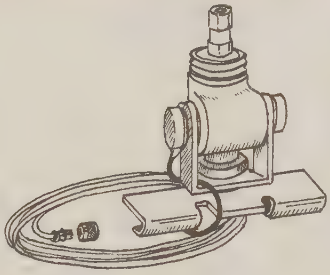
Optional Loading Coils

HVC7	40m	$39.95
HVC14	20m	$37.95
HVC18	17m	$37.95
HVC21	15m	$27.95

Antennas for Handhelds



K400-3/8C
Special Trunk Mount



for 3/8 x 24 thread Antennas

Here's the ideal mounting system for Outbacker Perth, OB Jr., and other medium weight antennas. A spring is recommended for stiff or heavy antennas.

Power:	350 watts RMS
Cable:	6 1/2' RG316 teflon coax
Connector:	PL-259
Adjustment:	2 axis

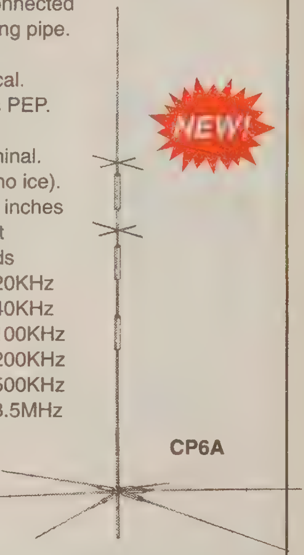
K400-3/8C **$69.95**
Note: Use C110, 10 ft extension for front radio installation.$14.95

HF Multiband Vertical Antenna

The CP6A multiband trap vertical antenna for HF bands covering 75, 40, 20, 15,10 and 6 meter amateur bands. Made from heavy duty aluminum, the CP6A assembles easily, yields excellent performance and reliability from a compact base station antenna. Its compact size allows for many mounting options. Minimum 15 feet diameter required for mounting radials. No additional ground radials required. Mounting hardware included.

CP6A frequency	75* / 40 / 20 / 25 / 10 / 6 meters.	
Radials	Trap design; CP5 – five; CP6 – six.	
Grounding	Direct grounding; antenna element & radials connected to mounting pipe.	
Element	1/4 wave trap vertical.	
Power	200 watts PEP.	
Impedance	50 ohms.	
VSWR	1.5:1 nominal.	
Max wind	80 mph (no ice).	
Mast diameter	1.2 to 2.4 inches	
Length	15.10 feet	
Weight	9.9 pounds	
Bandwidth (for nominal 1.5:1 VWSR without antenna tuner)	75m	20KHz
	40m	40KHz
	20m	100KHz
	15m	200KHz
	10m	500KHz
	6m	3.5MHz

NEW!



* 75m requires an antenna tuner.

Diamond Accessories

Model	Description	HRO Price
CX-210A	Heavy duty wideband coax switch, DC-1000 MHz. 1.5 kW, SO-239 connector.	$44.95
CX-210N	Heavy duty wideband coax switch, DC-1500 MHz. 1.5 kW, N connector.	$74.95
CX-310A	Heavy duty 3 position coax switch, wideband. DC-800MHz. SO-239 connectors.	$83.95
DL-30A	Dummy load. DC-500 MHz, 15W RMS (max)/100w peak. PL-259 connector.	$27.95
HB-100	Desktop mounting bracket for handheld transceivers	$34.95

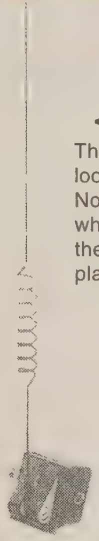
Diamond Handheld and Receiving Antennas

Model	Description	HRO Price
D-130J	Wideband discone 25-1300 MHz. 200 W transmit 50-1300 MHz. No cable.	$89.95
RH-3	2m / 70cm dual-band HT antenna. 1.75" BNC. 120-900 MHz receive.	$24.95
RH-77CA	High gain 2m / 70cm dual-band HT antenna. Receive range to 900 MHz. BNC.	$24.95
RH-205	2m HT antenna, telescopic, 5/8 fully extended, 47.5"; 1/4 retracted, 9".	$24.95
RH-519	2m / 70cm slim dual-band HT antenna. Flexible. 8" BNC, 10 watts.	$27.95
RH-707	2m / 70cm dual-band, tiltable whip HT antenna. 8-1/4" BNC.	$33.95
RH-951S	High gain 2m / 70 cm / 23 cm slim tri-band HT antenna. Flexible. BNC (Wide band receive)	$44.95
SRH-519	2m / 70cm slim dual-band HT antenna. Flexible. 8" SMA, 10 watts.	$29.95
SRH-805	2m / 70cm / 23cm tri-band HT antenna. 1.75" SMA, 10 watts.	$27.95
SRH-815	2m / 70cm / 23cm tri-band HT antenna. Flexible. 6" SMA, 10 watts.	$36.95

VHF / UHF MOBILE ANTENNAS

On-Glass Antennas

antenna specialists



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AP-143

This unique on-glass styling with a coil looks like a cellular antenna. Broad banded. No tuning necessary. The length of the whip is only 26 inches. Black coating on the antenna is very attractive. No ground plane required.

Larsen

Single Band 1/2-Wave

Model	Antenna Description	HRO Price
KG-144-PL	2 meter	$64.95
KG-220-PL	220 MHz	$64.95
KG-440-PL	440 MHz	$54.95

Larsen's full selection of on-glass antennas for single-band and dual band use are described on page 101. All single band antennas are precut. A single 1/2 wave design provides 2.4 dB gain.

2m / 70 cm Dual-Band Antennas

There are more dual-band antennas on the following pages:

PREMIER communications See Page 95

COMET See Page 100

See Page 96

Larsen See Page 103

DIAMOND ANTENNA See Page 104

Brand	Model	Type	Frequency MHz	Gain	Weight oz.	HRO Price
Larsen	NMO 2/70	2m	144-148	2.6 dB	3.9	$53.95
		70cm 5/8 collinear	440-450	5.5 dB		
Austin	500C	2 m	144 -148	Unity	6	$32.95
		70 cm	440 - 450			
	Metropolitan	2 m	144 -148			$39.95
		220 MHz	220 - 225	Unity	6	
		70 cm	440 -450			
Valor	GM270	2m	144 -148	2.6 dB	–	$39.95
		70 cm	440 - 450	4.0 dB		
	MM270B	2m	144 -148	–	–	$39.95
		70 cm	440 - 450	–		
	PM144-440	2m	144 -148	–	–	$14.95
		70 cm	440 - 450	–		
	MO144-440	2m	144 -148	Unity	–	$16.95
		70 cm	435 - 450	2. dB		

Antenna Mount

Tenna Hitch

HRO Price $35.95

Where can you mount your antenna on a car with no bumpers? Where can you mount your HF antennas without punching holes? Do you want to pull a trailer and ham at the same time? Here is the solution. The Tenna Hitch mounts under the ball of your trailer hitch so you can use your regular antenna for HF operation while still pulling a trailer. Tenna Hitch supports all current HF mobile antennas. It comes with all the hardware necessary for mounting on a trailer hitch.

Secure Ordering from HRO on the Web:
http://www.hamradio.com

Duplexers

When using a single antenna with mobile radios that have separate 2 meter and 440 MHz outputs, you must use a duplexer.

Diamond has a wide collection of duplexers and triplexers for coupling antennas and transceivers. See page 105.

Yaesu's AD-3 handles up to 50 watts. Its short cables attach to VHF radios with an SO-239 and to UHF with a type N connector. VHF to UHF isolation is 50 dB. **HRO Price $49.95**

Larsen's AD-2 / 70 du-plexer provides a bi-directional passive coupler. Handles 200 watts. VHF/UHF isolation is more than 50 dB. **HRO Price $69.95**

Comet Antenna has a wide variety of duplexers & triplexers with gold-plated connectors, high isolation and the highest power handling abilities. See page 101.

MAXRAD

Quality VHF / UHF antennas are available. Please call for models, specifications, & quotes.

Dual-Band Antennas

NCG

NEW!

Fold-Over, Spring-Loaded Mobile Antennas for 2 m / 70 cm

Finally, mobile gain antennas built to withstand the bumps against garages and tree limbs. The MSG spring-loaded whips also include a fold-over hinge to help prevent damage especially on taller vehicles such as vans and SUVs. Both antennas have chrome finish, a PL-259 connector, and take maximum power of 150 W FM.

MSG-1000C Length: 39 inches
Gain: 2.15 / 5.5 dBi
Suggested List Price: $62.95

MSG-1100C Length: 43 inches
Gain: 3.5 / 6.0 dBi
Suggested List Price: $72.95

MA-SERIES CRANK-UP MASTS

The premier MA-Series crank-up Tubular Towers are designed to be both safe and neighbor friendly. The slender design gives a Clean, flagpole-like appearance, while allowing for antennas up to 10 sq. feet in 50 mph winds. Per EIA Specifications, adequate safety margins are included. Uniform Building Code calculations are available for most models.

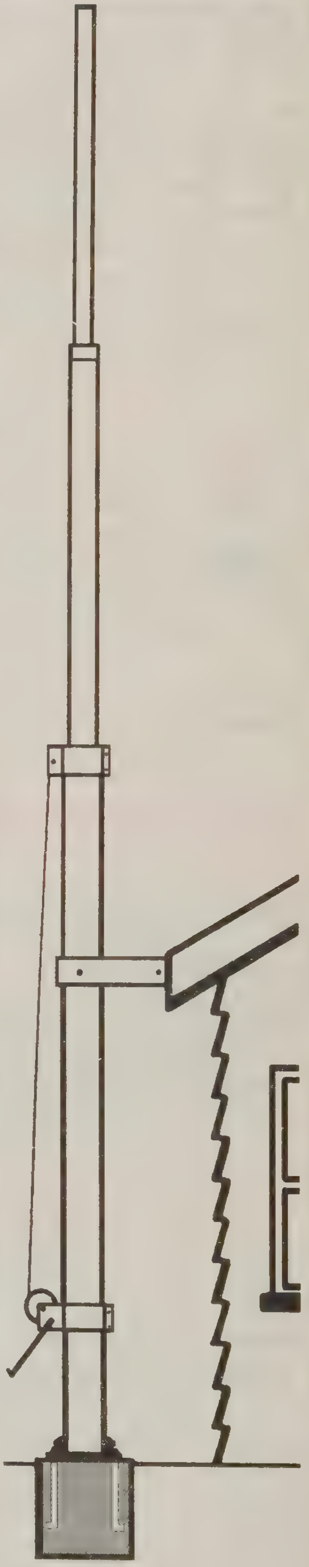
The MA-40 and 550 models come standard with flat base. two 1/2" x 10" anchor bolts, wall bracket and rotor plate mounted on top of top section. No guying is required when tower is properly bracketed to the eve of your roof.

MA-Series towers are completely self-supporting only when used with accessory MARB or MAB Series bases. The MARB Series rotor base allows the entire tower and antenna to be rotated from the base (rotor not included). This provides for easy rotor maintenance plus emergency hand rotation of the entire tower and antenna.

The MA-550MDP, 770MDP and 850MDP models include a heavy duty motor drive with positive pull down. The MDP models provide motorized raising and lowering of the tower. A remote control unit (RMC-1000) accessory is available that allows raising and lowering from your ham shack or other remote location.

All models without motor drives come standard with manual hand winches which have load actuated brakes for maximum safety. This feature prevents the winch from free-wheeling and causing injury to you or your installation in the event that you lose your grip during raising or lowering.

All steel used at US Tower conforms to ASTM specifications. All welding is done by certified factory personnel. All of our towers are factory tested by trained personnel before leaving the plant.

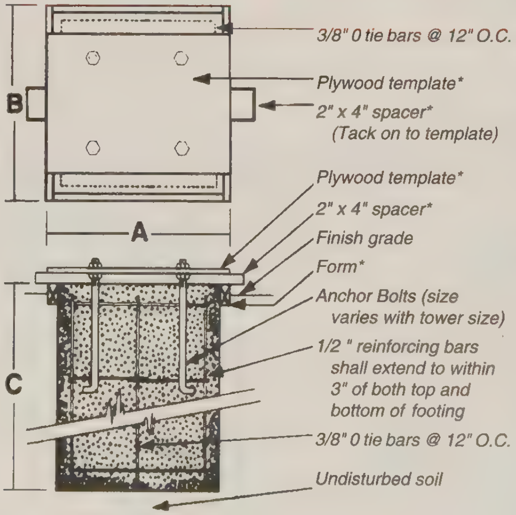


Model Number	Height Maximum	Height Minimum	Sections	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
MA-40	40'	21'6"	2	242	3" sq.	4.5"	$849.95
MA-550	55'	22'1"	3	435	3" sq.	6.625"	$1,399.95
MA-550MDP*	55'	22'1"	3	620	3" sq.	6.625"	$2,899.95
MA-770	75'	22'10"	4	645	3" sq.	8.0"	$2,359.95
MA-770MDP*	75'	22'10"	4	830	3" sq.	8.0"	$3,999.95
MA-850MDP*	90'	23'6"	5	1128	3" sq.	10.0"	$5,399.95

All Towers will handle 10 sq. ft antenna at 50 MPH winds.

* These towers also requires purchase of MCL-100 or RMC-1000

MA-SERIES BASE INFORMATION


3/8" 0 tie bars @ 12" O.C.
Plywood template*
B
2" x 4" spacer*
(Tack on to template)
A
Plywood template*
2" x 4" spacer*
Finish grade
Form*
Anchor Bolts (size varies with tower size)
C
1/2 " reinforcing bars shall extend to within 3" of both top and bottom of footing
3/8" 0 tie bars @ 12" O.C.
Undisturbed soil

**To be removed after base is installed.*

Model	A	B	C	HRO Price
MA-40 standard flat base	16"	16"	16"	CALL
MA-550 standard flat base	20"	20"	20"	CALL
MARB-40 Rotator Base	3'	3'	4'	$549.95
MARB-550 Rotator Base	3'	3'	5'6"	$649.95
MARB-770 Rotator Base	3'	3'	6'6"	$779.95
MARB-850 Rotator Base	4'	4'	6'6"	$919.95

Base dimensions may vary with different soil compositions.
Allow ample time for concrete to cure.
MAB and MARB dimensions are the same.

Tower base hole size and rebar are for illustration only, current UBC engineering calculations should be used to determine your specific installation.

Rebar is not provided by US Tower. MA-40 & 550 use their standard base as a template. These standard bases use only 2 bolts and require no rebar. Wooden template included with MAB & MARB bases.

Because of wide variations throughout the country in zoning requirements and loading conditions (snow, wind, ice, etc.), it is the responsibility of the customer to make Certain that his Tower conforms to all applicable codes. We recommend you obtain all necessary permits prior to purchase .

The factory reserves the right to make changes or modifications without notice.

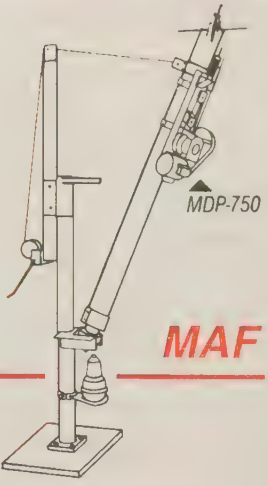
MA-SERIES ACCESSORIES

The Customer is Responsible
for obtaining all local city or county building and tower permits
AND
for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.

MAF Raising Fixture

MAF-Series Raising Fixture accessory for easy raising and antenna servicing. For use with MARB and MAB bases.

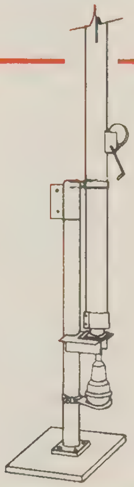
Model	Description	Weight
MAF-40	Raising fixture for MA-40	35#
MAF-550	Raising fixture for MA-550	70#
MAF-770	Raising fixture for MA-770	75#
MAF-850	Raising fixture for MA-850	80#



MAF

MARB Freestanding Rotator Base

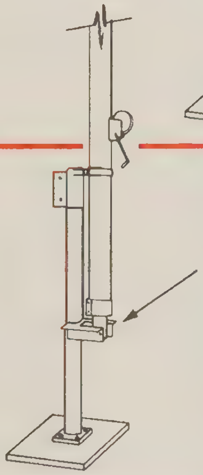
Model	Description	Weight
MARB-40	Freestanding rotator base for MA-40 with four 3/4" x 27" anchor bolts and thrust bearing	75#
MARB-550	Freestanding rotator base for MA-550 with four 1" x 36" anchor bolts and thrust bearing	140#
MARB-770	Freestanding rotator base for MA-770 with four 1" x 36" anchor bolts and thrust bearing	195#
MARB-850	Freestanding rotator base for MA-850 with four 1-1/8" x 36" anchor bolts and thrust bearing	280#



MARB

MAB Freestanding Type Base

Model	Description	Weight
MAB-40	Freestanding hinged base for MA-40 with four 3/4" x 27" anchor bolts	55#
MAB-550	Freestanding hinged base for MA-550 with four 1" x 36" anchor bolts	119#
MAB-770	Freestanding hinged base for MA-770 with four 1" x 36" anchor bolts	175#
MAB-850	Freestanding hinged base for MA-850 with four 1-1/8" x 36" anchor bolts	180#



Hinging allows for easy installation on both MAB and MARB bases.

MAB

Coax Standoff Arms

Model	Description	Weight
CX-2M	Coax standoff arms for MA-40	4#
CX-3M	Coax standoff arms for MA-550	6#
CX-4M	Coax standoff arms for MA-770	8#
CX-5M	Coax standoff arms for MA-850	10#
IV-16	The IV-16 slips over the top of the mast and rests at the top of the tower to hold inverted vee antennas. The IV-16 cannot be used with the MARB rotator base.	5#

Call Toll-Free for Discounts on U.S. Towers and Accessories

Motor Drives

Model	Description	Weight
MD-75	Heavy-duty motor drive with one HP motor and gear box.	155#
MDP-750	Heavy-duty motor drive with one HP motor, gear bos, and positive pull down.	185#

Remote Control Accessories

Model	Description	Weight
RMC-1000	Relay operated remote control for raising and lowering your tower from your ham shack or other remote location.	18#
MCL-100	Limit switch control package includes limit switches, limit switch brackets, and control box at the base of the tower.	7#

US TOWER CORPORATION

TMM SERIES

US Tower's *latest design includes the compact TMM Series towers giving Hams in restricted areas an alternative. The TMM Series has a minimum retracted height of 11'4" (may vary, depending on rotator used) and a maximum height of 47' including mast. At the towers' retracted height, visual impact is reduced to a minimum and antenna servicing is made easier. Typically the tower and antenna are below the roof line of your home when the tower is fully retracted.*

The TMM Series towers are lightweight, freestanding crank-up towers that allow up to 18 square feet of antenna in 50 mph winds per EIA specifications. The TMM-433HD handles 24 square feet. These lightweight towers should provide many years of trouble free service. All of our towers have a hot dipped galvanized finish inside and out.

The TMM-433SS and 541SS must have the rotator top mounted. The TM-433HD will accept the Alliance HD-73 and Telex Ham IV inside the tower. Oversized rotators will prevent full retraction of your tower; however, they may be used if full retraction is not required. This restriction is dependent on location of rotator plate. All TMM Series towers include anchor bolts, rotor plate, hinged T-base, load actuated winch, and eight feet of 2" OD x 120" antenna mast.

The TMM-433SS will accept the MD-75 motor drive accessory. The TMM-433HD and 541SS will accept the MD-75 and MDP-750 accessory motor drives. The MDP-750 motor drive accessory is compatible with both of our MCL-100 and RMC-1000 limit switch packages (see accessories).

TX SERIES

US Tower's *freestanding TX Series crank-up towers are as strong or stronger than most competitors' heavy-duty models. The TX Series towers have 21 foot sections with 4 foot overlap to provide extra height and strength. In addition, the overlap helps prevent binding while lowering your tower in high wind and conditions.*

The TX Series towers have a large enough top section (12 1/2") to permit installation of most rotators inside the section for maximum strength while allowing the section to fully retract. Cross bracing at critical points on the tower ensures safety and additional strength. All US Towers crank-up towers have a heavy-duty, hot dipped galvanized finish both inside and out, which should provide many years of trouble free service.

The TX Series towers come complete with rotator plate and base hardware which includes, large steel anchor bolts and heavy-duty steel T-base that allows the tower to hinge on for easy installation. All T-bases will accept the TRX Series raising fixtures for easy one man installation. All TX Series towers include Fulton hand winches (except MDP and MDLP models) which feature automatic load actuated brakes for maximum safety. Masts and motor drives are available as accessories (see accessory page).

The TX-472MDP comes complete with MDP-750 motor drive and limit switch brackets. The TX-489MDPL includes the MDPL-1000 motor drive and limit switch brackets. Limit switch assemblies and remote raising devices are available (MCL-100) (RMC-1000) for all MDP-750 and MDPL-1000 motor drive units (see accessory page for description).

US Tower's TX Series requires no guying. The wind loading is calculated at 18 square feet of antenna in 50 mph winds per EIA specifications. To assist you in applying for necessary construction permits, Uniform Building Code calculations are available for most models.

HDX SERIES

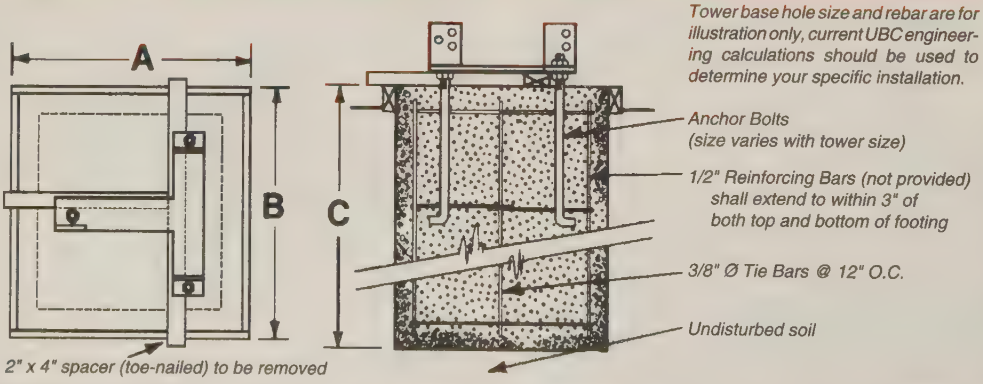
US Tower's HDX Series *heavy-duty crank-up towers have up to 2 1/2 times more windloading capacity than others commonly advertised. This superior strength allows for large stacked arrays, while using our commercial type bases and anchor bolts that can be easily installed and vertically adjusted. All HDX Series T-bases are designed to use our TRX Series raising fixtures to make installations and antenna servicing a one man job.*

Modified top sections for the HDR-300 rotators are available at a small additional cost. US Tower carries as accessories many different sizes and strengths of masts which can be used with the HDX Series towers. The HDX-572MDPL and 589MDPL motorized towers provide dual level wind, positive pull down and heavy duty gear box features. The HDX-572MDPL comes only with limit switch brackets. The HDX-589MDPL comes complete with the MCL-100, limit switch package. All towers using MDP-750 and MDPL-1000 motor drives may use the RMC-1000 accessory limit switch package which allows the raising and lowering of your tower from the comfort of your ham shack or any remote location. MCL-100 is also available (see accessory page).

All HDX Series towers come complete with rotator plate, anchor bolts and heavy-duty T-base (doubles as template). US Tower's special T-base design allows the tower to hinge for easy installation. US Tower's crank towers do not require guy wires. The HDX Series towers are rated at 30 square feet of antenna at 50 mph winds per EIA specifications. To assist you in getting a construction permit, Uniform Building Code calculations are available for most towers.

CRANK-UP TOWER BASE INFORMATION

Tower base hole size and rebar are for illustration only, current UBC engineering calculations should be used to determine your specific installation.


A
B
C
Anchor Bolts
(size varies with tower size)
1/2" Reinforcing Bars (not provided) shall extend to within 3" of both top and bottom of footing
3/8" Ø Tie Bars @ 12" O.C.
Undisturbed soil
2" x 4" spacer (toe-nailed) to be removed

Model	A	B	C
TMM-433SS	3'	3'	4'
TMM-541SS	3'	3'	4'6"
TMM-433HD	3'	3'	5'
TX-438	3'	3'	5'
TX-455	3'	3'	6'
TX-472	4'	4'	7'
TX-489	4'	4'	7'
HDX-538	3'	3'	6'
HDX-555	4'	4'	6'
HDX-572	4'	4'	7'
HDX-589	5'	5'	7'6"
HDX-689	6'	6'	8'6"
HDX-5106	6'	6'	9'

SELF-SUPPORTING CRANK-UP TOWERS

Tower Specifications

COMPACT TMM-SERIES CRANK-UP TOWERS

Model Number	Height Maximum	Height Minimum	Sec-tions	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
TMM-433SS	33' w/o Mast	11'4"	4	315	10"	18"	$1,219.95
TMM-433HD	33' w/o Mast	11'4"	4	400	12.5"	20 7/8"	$1,479.95
TMM-541SS	41' w/o Mast	12'	5	430	10"	20 7/8"	$1,599.95

All Towers handle 18 sq. ft. antenna at 50 MPH winds. TMM-433HD handles 24 sq. ft.

TX-SERIES FREE-STANDING CRANK-UP TOWERS

Model Number	Height Maximum	Height Minimum	Sec-tions	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
TX-438	38'	21'6"	2	355	12.5"	15"	$999.95
TX-455	55'	21'	3	670	12.5"	18"	$1,599.95
TX-472	72'	22'8"	4	1040	12.5"	21 5/8"	$2,479.95
TX-472MDP*	72'	22'8"	4	1210	12.5"	21 5/8"	$4,799.95
TX-489MDPL	89'	23'4"	5	1800	12.5"	25 5/8"	$6,439.95

All Towers will handle 18 sq. ft. antenna at 50 MPH winds.

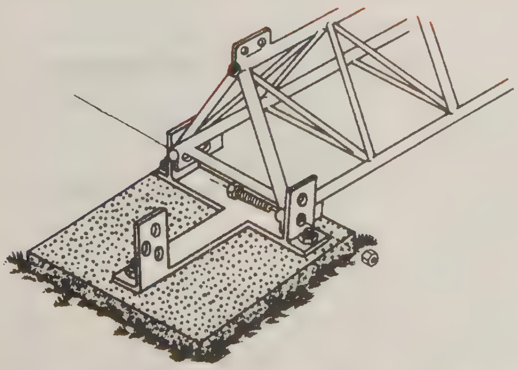
* This tower requires purchase of MCL-100 or RMC-1000

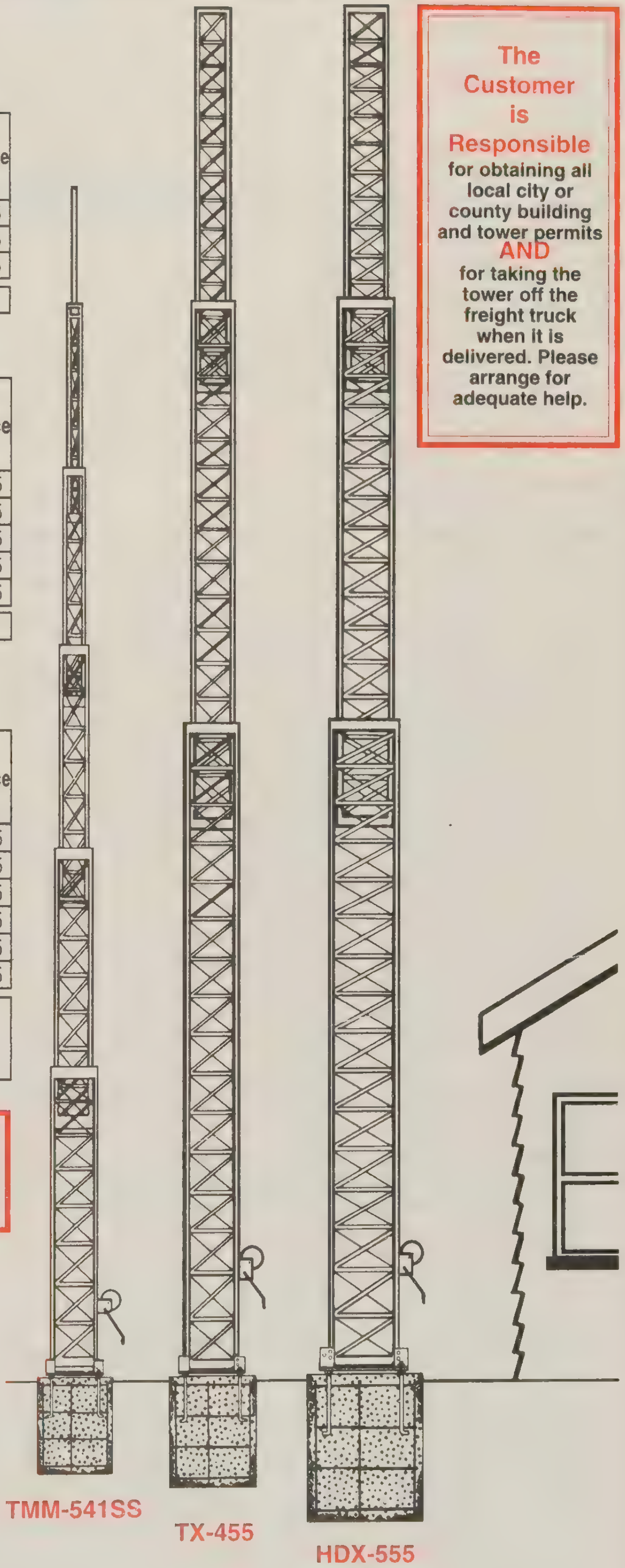
HDX-SERIES HEAVY-DUTY CRANK-UP TOWERS

Model Number	Height Maximum	Height Minimum	Sec-tions	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
HDX-538	38'	21'6"	2	600	15"	18"	$1,289.95
HDX-555	55'	22'	3	870	15"	21 5/8"	$2,219.95
HDX-572MDPL	72'	22'8"	4	1600	15"	25 5/8"	$5,929.95
HDX-589MDPL	89'	23'8"	5	2440	15"	30 5/8"	$7,729.95
HDX-689MDPL	89'	23'8"	5	3450	18"	37 1/8"	$15,029.95
HDX-5106MDPL	106'	24'8"	6	3700	15"	37 1/8"	$16,649.95

All Towers will handle 30 sq. ft. antenna at 50 MPH winds.
HDX-689MDPL rated at 60 sq. ft of antenna at 50 mph winds.
HDX-5106MDPL rated at 35 sq. ft. of antenna at 50 mph winds.

Call Toll-Free for Discounts on U.S. Towers and Accessories



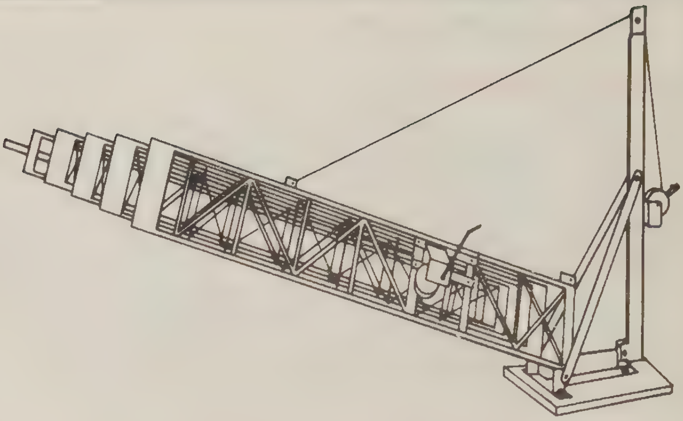


The Customer is Responsible for obtaining all local city or county building and tower permits **AND** for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.

The factory reserves the right to make changes or modifications without notice.

US TOWER CORPORATION

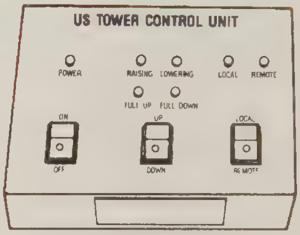
Raising Fixture

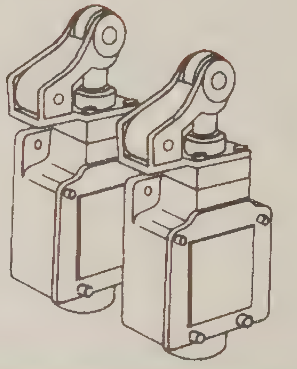


Model	Description	Weight
TRX-80	Standard model tower raising fixture for TMM, TX, and HDX series towers.	120#
TRX-80HD	Heavy-duty model tower raising fixture for TX and HDX series towers.	155#

Both TRX-80 and 80HD are designed to be easily mounted on your tower's hinged T-base for quick and safe one-man installation or antenna servicing.

Remote Control



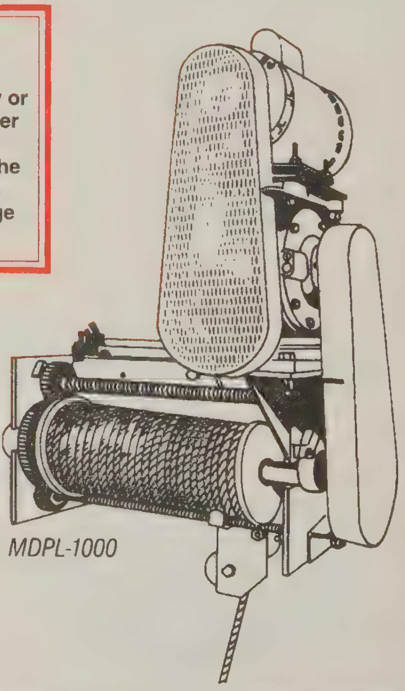


Model	Description	Weight
RMC-1000	Relay operated remote control for raising and lowering your tower from your ham shack or other remote location. The RMC-1000 includes limit switches, limit switch brackets, and two relay boxes. The RMC-1000 can only be used with the MDP-750 and MDPL-1000 motor drives.	18#
MCL-100	Limit switch control package. The MCL-100 includes limit switches, limit switch brackets and control box at the base of the tower. The MCL-100 allows you to raise and lower your tower with automatic shut down when maximum or minimum height is reached. The MCL-100 can only be used with the MDP-750 and MDLP-1000 motor drives.	7#

Motor Drives

Model	Description	Weight
MD-75	Heavy-duty motor drive with 1 HP motor and gear box.	155#
MDP-750	Heavy-duty motor drive with 1 HP motor, gear box and positive pull down. US Tower's positive pull down feature is designed to mechanically apply the same strength in the retraction process as is used in the raising of your tower. Positive pull down is very important in lowering your tower in high wind conditions. The MDP-750 differs from the standard motor drive (MD-75) unit which releases tension on the cables allowing the weight of the upper sections to be the only lowering force.	185#
MDLP-1000	Heavy-duty motor drive with 1 HP motor, heavy duty gear box, positive pull down and dual level wind features. Dual level wind is an exclusive US Tower design allowing the cable to wind on the motor drum in a uniform manner. This prevents the cable from overlapping on the drum. For description of positive pull down see MDP-750.	220#

The Customer is Responsible
for obtaining all local city or county building and tower permits AND for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.



MDPL-1000

Call factory for replacement 1 HP motors, handwinches, limit switches, 3/16" x 7" x 19" and 1/4" x 7" x 19" aircraft cable, anchor bolts, belts, pulleys, sprockets, and modified bases. Tower dolly rentals are available. The factory reserves the right to make changes or modifications without notice.

CRANK-UP ACCESSORIES

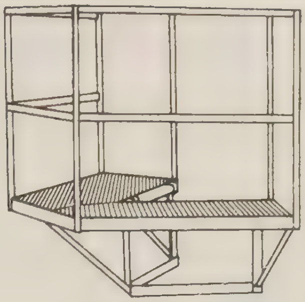
Model	**Description**	**Weight**

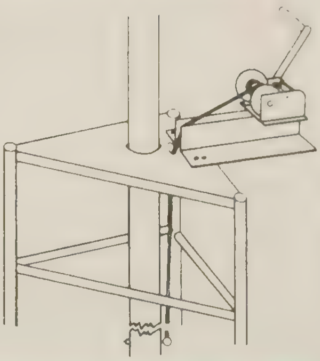
Service Platform

HDP	Large service platform with safety railings to provide a safe and comfortable surface while installing or maintaining your antenna and rotator.	125#

Mast Raising Fixture

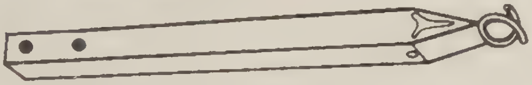
MRF	Mast raising fixture with winch and cable that attaches to the top of your tower to assist in raising and lowering your antenna mast.	20#





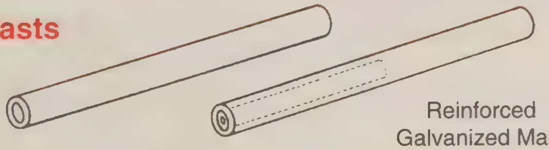
Coaxial Arm Sets

IV-16	The IV-16 slips over the top of the mast and rests at the top of the tower to hold inverted vee antennas. The IV-16 cannot be used with MARB rotator base.	5#



CX-2	Set of 2 coax standoff arms	6#
CX-3	Set of 3 coax standoff arms	8#
CX-4	Set of 4 coax standoff arms	10#
CX-5	Set of 5 coax standoff arms	13#

Masts



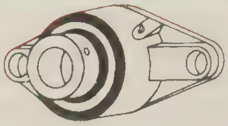
Reinforced Galvanized Mast

US Tower offers two different types of masts. The M-5, 10, 15 and 20 masts have .120" wall thickness. The M-15R and 20R have steel pipe inserts in the lower half of the mast which provides extra strength where most needed without adding unnecessary weight in the top portion. The M-15R and 20R have a wall thickness of .250".

Model	**Description**	**Weight**
M-5	2" O.D. x 5 foot galvanized mast	14#
M-10	2" O.D. x 10 foot galvanized mast	25#
M-15	2" O.D. x 15 foot galvanized mast	40#
M-15R	2" O.D. x 15 foot reinforced galvanized mast	50#
M-20	2" O.D. x 20 foot galvanized mast	55#
M-20R	2" O.D. x 20 foot reinforced galvanized mast	70#
CM-20	2" O.D. x 20 foot chromolly mast	140#

3/4" x 27"	Anchor bolt with 2 nuts	5#
1" x 27"	Anchor bolt with 2 nuts	10#
1-1/8" x 27"	Anchor bolt with 2 nuts	12#
RP-3	Rotator plate for 10" section	5#
RP-4	Rotator plate for 12.5" section	7#
RP-5	Rotator plate for 15" section	9#

Thrust Bearing



TB-2US	Thrust Bearing for 2" mast, 2 flange holes	10#

Tower Accessories

R - Required
S - Standard
O - Optional

	TX-438	TX-455	TX-472	TX-472MDP	TX-489MDPL	HDX-538	HDX-555	HDX-572MDPL	HDX-589MDPL	TMM-433SS	TMM-433HD	TMM-541SS	HRO Price
MASTS													
M-5	O	O	O	O	O	O	O	O	O	O	O	O	$40.95
M-10	O	O	O	O	O	O	O	O	O	O	O	O	$77.95
M-15	O	O	O	O	O	O	O	O	O	O	O	O	$109.95
M-20	O	O	O	O	O	O	O	O	O				$139.95
M-15R	O	O	O	O	O	O	O	O	O				$159.95
M-20R	O	O	O	O	O	O	O	O	O				$209.95
CM-20	O	O	O	O	O	O	O	O	O				$449.95
RAISING FIXTURE													
TRX-80	O	O				O	O			O	O	O	$439.95
TRX-80HD			O	O	O			O	O				$569.95
SERVICE PLATFORM													
HDP			O	O	O			O	O				$819.95
COAX STANOFF ARMS													
CX-2	O					O							$55.95
CX-3		O					O						$77.95
CX-4			O	O				O		O	O		$109.95
CX-5					O				O			O	$149.95
MOTOR DRIVES													
MD-75	O	O				O	O			O	O	O	$999.95
MDP-750		O	O	S			O				O	O	$1549.95
MDPL-1000			O		S				S				$2109.95
REMOTE CONTROL													
RMC-1000		O	O	O	O		O	O	O		O	O	$999.95
MCL-100		O	O	R	S		O	S	S		O	O	$469.95
MISCELLANEOUS													
3/4" X 27" bolts	S									S	S	S	$26.95
1" X 27" bolts		S			S	S		S		S			$32 95
1-1/8" X 27" bolts			S	S			S		S		S	S	$43 95
RP-3										S		S	$39.95
RP-4	S	S	S	S	S						S		$47.95
RP-5						S	S	S	S				$52 95
MRF	O	O	O	O	O	O	O	O	O		O		$269.95
TB-2US	O	O	O	O	O	O	O	O	O		O		$104.95
IV-16	O	O	O	O	O	O	O	O	O	O	O	O	$41.95

TOWERS & ANTENNA MOUNTS

Unarco-Rohn

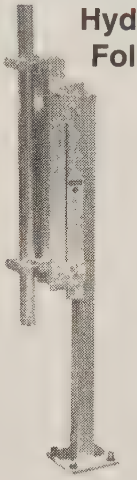
25G & Accessories

25G	10' tower section.
25AG2	Top secton for use with communication antenna. Mast support tube is 2 1/4" O.D., 36" total length, extending 18" above apex of side rails.
25AG4	8' top section for communication antenna. Upper end terminates in 11" diameter flat, circular plate with a 2 1/4" hole in center.
AS25G	Accessory shelf.
GA25GD	Guy assembly
SB25G	3'4" short base section for concrete.
SBH25G	3'4" hinged short base section for concrete.
BPC25G	Concrete base plate.
BPH25G	Hinged base plate for concrete.
HB25AG	Adjustable house bracket (0-15")
HB25BG	Adjustable house bracket (0-24")
HB25CG	Adjustable house bracket (0-36")
HBU	Universal house bracket (6-30").
TB3	Heavy-duty thrust bearing is recommended for 2" O.D. mast.
WP25G	Work platform.
EF2545	Aluminum erection fixture.

Other accessories available. Rohn towers shipped truck collect. Call for information and quotes.

Fold-over Mount

ALPHA DELTA



Hydraulically Dampened Fold-Over Mast Fixture

DH-1 **(shown)**
includes powder coated steel pedestal
$239.95
HRO Price

DH-2
excludes pedestal– mounts on user-supplied 4 X 4 wood post
$219.95
HRO Price

Now one person can easily raise and lower an HF vertical or small VHF/UHF ground plane antenna 30 seconds. Easily adjust and maintain your antenna, or lower a vertical out of view when it is not in use. Constructed from stainless steel hardware and aircraft grade aluminum, the fixture is designed for verticals up to 29 feet and 25 pounds weight. They are preassembled and include a hydraulic damper for safe operation.

Antenna Rope

Synthetic Textiles

Black Dacron® Polyester

Size	Model	Strength	HRO Price*
3/32"	ST-3/32-100	260+ lbs	$9.95
3/16"	ST-3/16-100	770+ lbs	$14.95
5/16"	ST-5/16-100	1790+ lbs	$19.95

* Price per 100 feet

This antenna rope is constructed of strong, double braid Dacron® polester. It is black for UV protection and has excellent resistance to mildew and abrasion. The rope ties and cuts easily, sealing effectively with a hot knife. No expensive hardware is required. Sizes and prices shown in the chart.

HRO will ship products quickly from the store nearest you. Most orders greater than $100 receive free UPS Brown shipping in continental US.

Catalog Prices

HRO discount prices shown are current as of October 1, 2000 when this catalog was assembled. Prices change both up and down. Please be sure to call one of our toll-free numbers or check our Web page for the latest prices.

We at HRO strive to offer the most competitive prices in the industry on a full line of quality ham radio products.

Many manufacturers offer "coupons" or similar promotions. Call or check our Secure Web Page at http://www.hamradio.com for the latest manufacturer promotions.

General Information for Our Valued Customers

Easy Ordering

Six toll-free 800 numbers are available for orders. They are located throughout the United States. This provides personnel at one location or another to answer your questions for extended hours Monday through Saturday. You will find the same low prices at all locations and, thanks to computers, we have the stock levels of all locations available to each salesperson for estimates of availability and delivery.

24 Hour "On-Line" Ordering is now available on the INTERNET! URL is *http://www.hamradio.com*

Shipments are made from any of our 12 locations that has the particular items you need in stock. In most cases, the shipment will be made from the location nearest you (if stock is available). HRO is trying to provide the quickest shipments in the industry using these methods.

California customers can now order using a toll-free number. The number is 1-800-854-6046. It is no longer necessary for California customers to pay for the phone call.

Sales Tax

State and local laws require us to collect and remit State sales / use tax on orders shipped from any of our 12 locations INTO Arizona, California, Colorado, Georgia, or Virginia.

You will find that this small extra charge will be more than overcome by the convenience of the largest ham radio inventories in the United States. You will also find courteous and knowledgeable salespeople to assist you. We think you will find HRO to be the company you want backing you when it comes to dealing with any problems you might have with manufacturers or shipping companies.

Phone Orders

To place a phone order using a credit card, please have the following information available if you are a first-time caller or have not made a recent purchase from HRO. We will ask for your callsign (if any), credit card number, expiration date, your home telephone number, and possibly the name, address, and telephone number of the bank listed on your charge card statement.

Payment

We accept Visa, MasterCard and Discover Card. Personal checks are also accepted; however, processing time will delay shipment by some 10 days. When using a credit card, please have the card in front of you since we will need all the information, including the name of the issuing bank. If the card holder's BILLING address differs from the shipping address, please be sure to specify both addresses and telephone numbers. For your protection, we thoroughly investigate the validity of all credit card purchases.

COD Orders

COD payments must be made in cashiers check or money order at the time of delivery. There is a small fee for COD shipments.

Commercial Sales Purchase Orders

Written purchase orders will be accepted from city, state, and federal agencies, and, with prior approval of credit, from commercial organizations. HRO quotes, in most cases, prices that require payment on receipt of merchandise. You may find a surcharge for credit terms applied to your pricing. Please indicate that you require terms when calling for price quotes.

Delivery

Free UPS Ground Transportation in the continental US on most items over $100.

All Alaska and Hawaii shipments via UPS must be shipped by Blue Label (2nd Day Air) or Red Label (Overnight). Please ask for charges.

In a Hurry? If you find it necessary to expedite shipments, UPS has Red Label (overnight), Blue Label (2nd-day) and Orange Label (3 day) services available at an extra cost. Please request charges for these services.

Foreign Deliveries We ship world-wide. Contact our stores, preferably by fax, with your needs. We can give you quotes and details for placing your foreign order. Payment methods include wire transfer direct to our bank as well as payment by VISA/ MC charge cards or check drawn in U.S. Funds from a U.S. Bank. Shipments are made (depending on size) by UPS, FED EX, Emery, DHL, or international air mail. Some orders to some foreign countries cannot be insured to the full value.

Truck Delivery On day of delivery, if by truck, please be sure to have enough help, and / or proper equipment on hand for unloading merchandise. Truck drivers are NOT required to provide assistance. If you are not experienced at handling large, awkward items such as towers, antennas or amplifiers, please ask properly trained people to assist you.

Canadian Orders can now be shipped via UPS. These costs will be added to your invoice.

Damaged Items

UPS If the item is obviously damaged, note this with the driver and refuse shipment. This item will be returned to HRO and another will be sent at no additional charge. If hidden damage is noted, contact UPS as soon as possible. They will arrange pickup. Once the item is received by HRO, a replacement will be sent.

TRUCK If there is damage or the shipment is short, it is the customer's responsibility to file the claim with the trucking company. At the time of receipt of item, it is recommended that you have the driver write "damaged" or indicate shortage on the bill of lading he gives to you. Be sure to have the same notation as well as drivers signature on his copy also.

MAIL It is the customer's responsibility to file all loss or damage claims with the postal department.

Prices

Many prices shown are suggested list price. In most cases we offer large discounts. Equipment manufacturers constantly change prices, offer specials or react to the Dollar / Yen exchange rates. Simply call one of our 800 numbers and our staff will be happy to quote you the current selling price of the item you are interested in. Prices are subject to change without notice or obligation to the customer. Sorry, we cannot honor typos in this catalog.

Software

Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

Lost Items

When your order is delivered, please carefully count items and if anything is missing, notify HRO at once.

Occasionally, cartons shipped at the same time will arrive at their destination two or three days apart.

If you notify HRO within 10 days, we will replace lost or damaged items after completion of proper documentation and acceptance by the shipping agency.

New Equipment Returns

Products are not sold for evaluation. Under some circumstances (at the discretion of HRO) and with prior approval of the store of purchase, HRO will accept an item for return. Under most circumstances a 15% restocking fee and all freight charges will be assessed.

Your means of refund for returns will be the same as that used for your original payment except for cash, which will be refunded by check. HRO will pay from its corporate offices. It can take up to two weeks.

Defective merchandise may be returned within 10 days of the original purchase for exchange. Original receipt must accompany the return. Items returned for warranty replacement consideration must also include a completed, signed, "Warranty Replacement Certification Form." Customers who return equipment for replacement consideration without this form completed and signed cannot be considered for any possible warranty replacement, only warranty repair. No exceptions. Contact your salesman for details.

Manufacturer's New Equipment Warranties

Ham Radio Outlet supports all manufacturers' warranties. Actual warranty terms are included within the shipping container of most items. If needed, you may request from any of our locations a free copy of the manufacturer's written terms for any warranteed product. Please request by model number and indicate the page in this catalog that represents the product.

Ham Radio Outlet will in many cases provide in-store repairs; please contact the store of purchase for information. It will be necessary to provide us with the invoice number and purchase date, as most manufacturers need this information to process under their FREE warranty repair terms.

New Equipment Warranty Returns

When returning equipment for repair, please pack the item in original packing material or something similar to provide adequate protection during the shipping process. Note on box: "ATTENTION SERVICE." Include a copy of your purchase invoice, and a complete and detailed description of the problems. Without the invoice or a complete description, delays will be experienced in providing the proper service and returning the item to you. Be sure to insure the package for its replacement cost.

HRO will repair or replace the defective item at our option. If the item is found to be defective under the terms of the manufacturer's warranty, no charge will be made for service or return shipping within continental USA. It is the customer's responsibility to ship all defective items to the service center for warranty repair.

Problems

HRO prides itself in its ability to service the customer. If there is a problem please contact the manager of the store from which you purchased the merchandise. If for some reason, your problem cannot be corrected by that store manager, please feel free to call Ham Radio Outlet Corporate Headquarters at (925) 831-1771 and explain the situation. At this point our national sales staff will see that your problem is corrected.

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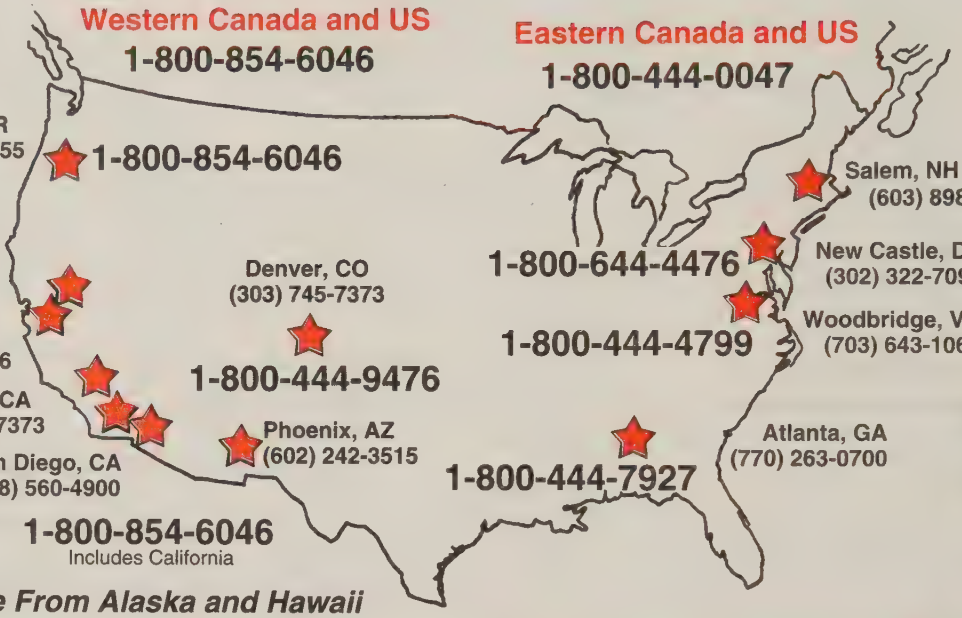
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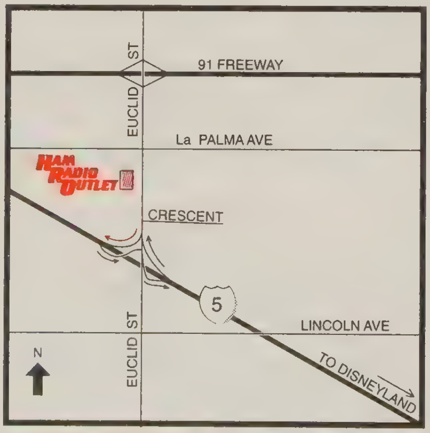
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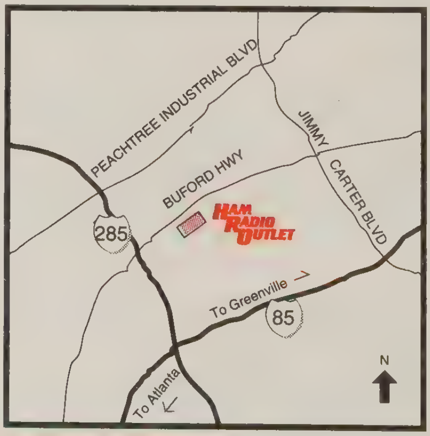
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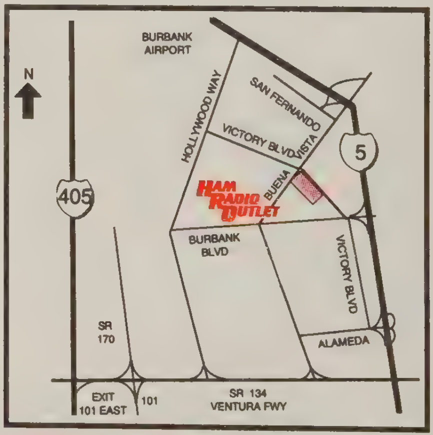
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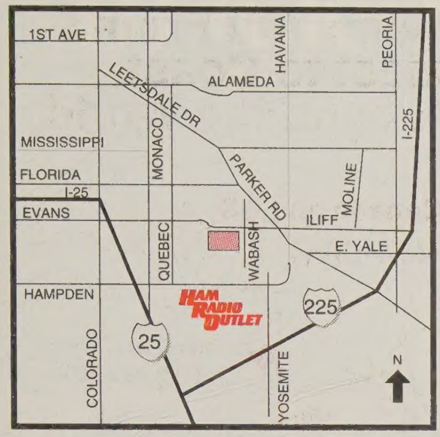
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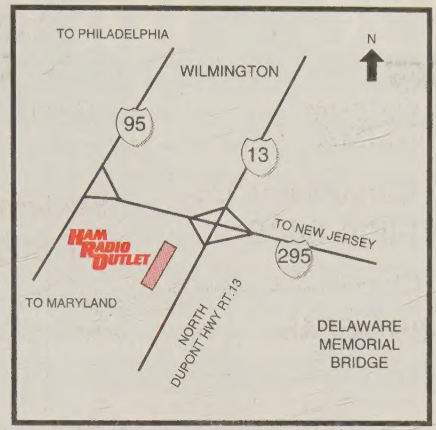
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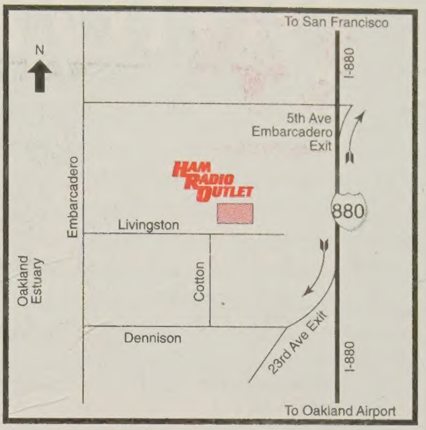
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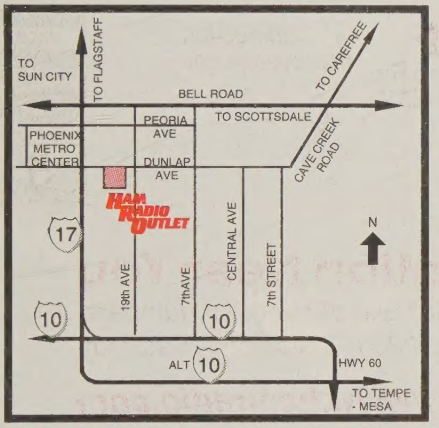
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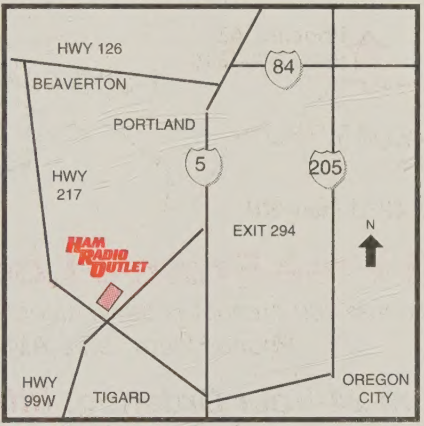
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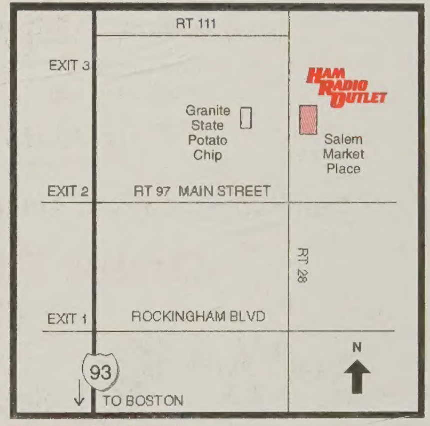
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EXIT 2
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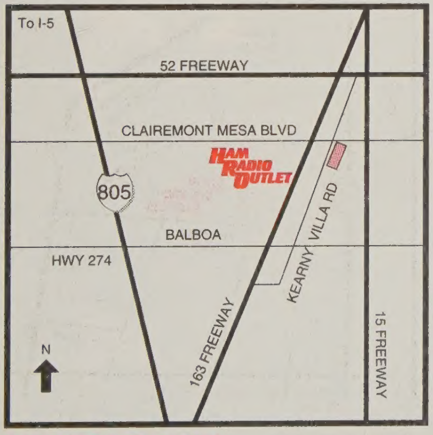
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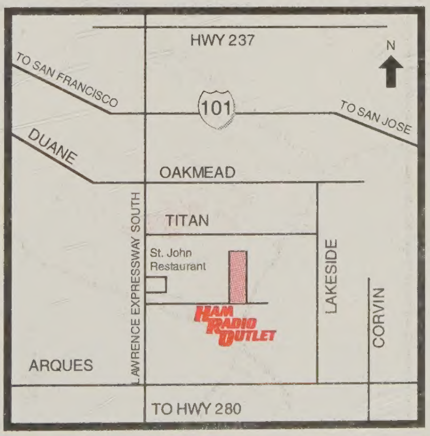
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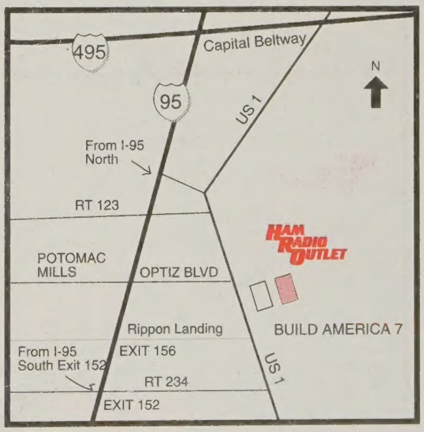
495
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95
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INDEX

MANUFACTURERS

- *ADI Corporation* 3-4
- *Adonis USA* 36
- *Advanced Battery Systems* 77
- *Alinco* 5-7, 80-81, 85
- *Alpha Delta* 35, 38, 48, 86, 90, 94, 114
- *Ameco* 48
- *Ameritron* 74, 83
- *Ampire* 82
- *Andrew* 87
- *Antenna Specialists* 107
- *Antenna Supermarket* 94
- *AOR* 39
- *ARRL* Products 46-48
- *Artsci* 48, 50
- *Astatic* 38
- *Astron* 80
- *ATOC Technologies* 97
- *Austin Antennas* 107
- *B & W* 91
- *Bencher* 35, 84-85, 89
- *Belden* 87
- *Bird* 73
- *Buckmaster* 50
- *Butternut* 90
- *Cal-Av Labs* 85, 90
- *Callbook* 48, 50
- *Centaur* 85
- *Coax-Seal* 87
- *Comet* 100-101
- *Communication Specialists* 33
- *CQ Publications* 48-49
- *Create* 91
- *CSI (Connect Systems)* 32
- *CSS (Creative Services Software)* 45
- *Cushcraft* 92-93
- *Daiwa* 81, 86
- *Deka* 79
- *Diamond* 72, 80, 91, 104-106
- *Digital Communications* 84
- *Dymek* 94
- *E Z Hang* 71
- *Force 12* 89
- *Garmin* 42-43
- *Geochron* 49
- *Gordon West School / W5YI* 48
- *Grundig* 40
- *Ham Sticks* 96
- *Heil Sound* 38
- *Hustler* 98-99
- *Icom* 4, 8-15, 39, 80-83, 85
- *International Antennas* 91
- *JRC* 39
- *Kantronics* 33
- *K-Com* 84
- *Kenwood* 16-21, 80, 85
- *Larsen* 95, 102-103, 107
- *Logikey* 35
- *M²* 88, 95
- *Magellan* 32
- *Maha* 78, 82-83
- *Maldol* 96
- *MFJ* 74-75
- *Mirage* 74, 83
- *NCG* 73, 94, 107
- *Nye Viking* 35, 85
- *Outbacker* 96
- *Palomar Engineers* 85
- *PolyPhaser* 86
- *PanaVise* 71
- *Par Electronics* 84
- *PortaGrip* 77
- *Pouch, The* 73
- *Premier Communications* 95
- *Pryme Radio Products* 4, 37
- *QRZ!* 50
- *Radio Publications* 48
- *R-A-M* 76
- *Ranger* 29
- *RF Applications* 72
- *RF Concepts* 82-83
- *RF Limited* 29
- *Samlex America* 80-81
- *Sangean* 40
- *SGC* 30-31, 82-83
- *Sony* 41-42, 44, 94
- *Swiech Communications* 94
- *Synthetic Textiles* 114
- *T.J. Antenna Co.* 96
- *Tenna Hitch* 107
- *Timewave Technology* 84
- *Ultimeter* 94
- *Unarco-Rohn* 114
- *Uniden* 44
- *US Tower* 108-113
- *Valor* 96, 107
- *Van Gorden* 82, 89
- *Ventenna* 95
- *Vibroplex* 34-35
- *Weller* 71
- *Yaesu* 22-28, 39, 80, 82-83, 85, 88, 91

PRODUCTS

- **Amplifiers**
  - HF 9-10, 24, 30, 74, 82-83
  - VHF / UHF 74, 82-83
- Antenna Switches 10, 74, 86, 106
- **Antennas**
  - ATV 94
  - Handheld 95, 100, 106
  - HF 10, 30, 75, 89-93, 98-99, 106
  - HF Mobile 30, 91, 96-99
  - On Glass 75, 96-97, 103, 107
  - SWL/ Scanner 74, 91, 94, 106
  - VHF / UHF 92-95, 98-100, 104
  - VHF / UHF Mobile ... 75, 91, 96-104, 107
- Baluns / Insulators 85, 89
- Batteries 6, 13, 15, 21, 27-28, 77-79
- Books 46-50
- **Cables**
  - Coax 87
  - Connecting 18, 28, 82
  - Packet / Data 18
  - Power 6-7, 15, 18, 21
  - Rotator 87
- Cases, Radio 6, 21, 24, 28, 73
- Chargers, Battery 6, 13, 21, 27-28, 78
- Clocks 49, 75
- **Computer Software**
  - Cloning / Programming 11, 24, 28, 44-45
  - Logging / Databases 45, 50
  - Packet 33, 45
  - World Clock 49
- Connectors / Adapters 87
- Dummy Loads 75, 106
- Duplexers 101, 105, 107
- Encoders / Decoders 6, 10, 21, 28, 33
- **Filters**
  - Band / High / Low Pass 10, 17, 84
  - Noise 18, 24, 75, 84
  - Telephone 84
- Global Positioning Systems 32, 42-43
- Headsets / Earphones 6, 15, 17, 21, 28, 37-38
- **Internet** .... **http://www.hamradio.com**
- Keys / Keyers 34-35, 75
- Lightning / Surge Protectors 75, 86
- Meters, SWR / Power 24, 72-74
- Mikes 6, 10, 15, 17-18, 21, 24, 28, 36-38
- **Mounts**
  - Equipment 76-77
  - Mobile Antennas 30, 96-102, 105-107
  - Mobile Radios 7, 10, 15-18, 102, 106-107
- Owl 89
- Packet Controllers 33
- Power Supplies 7, 10, 17, 24, 80-81
- Preamps 10, 82
- **Radios, Amateur**
  - Base 8-9, 11, 16-17, 22-23, 29-30
  - Handheld 3, 5, 14, 20, 26, 27
  - Mobile 4-7, 9, 11, 18-19, 23, 25, 29-30
- **Radios, Other**
  - Aircraft Nav/Com 4, 25
  - Family Service 4, 7, 14, 21, 27, 41
  - Marine 6
  - SWL Receivers 5, 12-13, 27, 39-41
  - Scanners 44
  - SSTV 21
- Repeaters 24
- Rope 114
- Rotators 88
- **Scanners**
  - Antennas 91, 94, 106
  - Books / Software 44, 49-50
  - Radios 44
- **Short Wave Listening**
  - Antennas 74, 91, 106
  - Books 48-50
  - Receivers 5, 12, 13, 27, 39-41
- Solar Power Systems 79
- Soldering Equipment 71
- Speakers 6, 10, 15, 17-18, 21, 28, 38
- Store Locations 116-117
- Towers / Roof Mounts 90, 108-114
- Tuners, Antenna .. 7, 10, 13, 17, 24, 31, 74, 85
- Vises 71
- Weather Stations 94
- **Worldwide Web http://www.hamradio.com**

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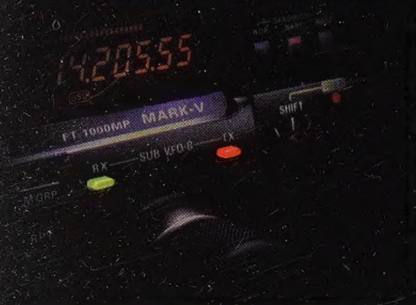
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FT-1000MP
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SUB VFO-B
RX
TX

Today's elite-class operators demand the best RF weaponry available. Yaesu's exciting new MARK-V FT-1000MP answers the call, with an expanded array of receiver filtering, 200 Watts of power output, and Class-A SSB operation capability for the cleanest signal on the band. Enhanced front-panel ergonomics save you seconds in a pile-up or a contest "run," and Yaesu's HF design and manufacturing know-how ensures that no short-cuts have been taken in our effort to bring you the best HF transceiver money can buy. For more QSOs in your log, and more awards on your wall, there is only one choice: the MARK-V FT-1000MP from Yaesu!

I. IDBT: Interlocked Digital Bandwidth Tracking System

The IDBT feature greatly simplifies operation by matching the bandwidth of the DSP (Digital Signal Processing) system to the net bandwidth of the 8.2 MHz and 455 kHz IF stages. The IDBT system accounts for the settings of the IF WIDTH and SHIFT controls, and automatically sets a DSP bandwidth which matches the analog IF bandwidth.

8.2MHz
455kHz
DSP
500Hz-2.4kHz

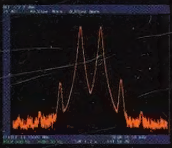
IDBT: A Breakthrough in Selectivity!

II. VRF: Variable RF Front-End Filter

Protecting the MARK-V's receiver components from strong out-of-band signals, the VRF system acts as a high-Q "Preselector," located between the antenna and the main bandpass filter networks, providing additional RF selectivity on the 160-20 meter Amateur bands for multi-operator contest teams, DX-peditions, or for operation near MW/SW broadcast stations.

III. 200 Watts of Transmitter Power Output

Utilizing two Philips® BLF147 Power MOSFETs in a 30-Volt, push-pull configuration, the MARK-V's transmitter puts out up to 200 Watts of clean output power, thanks to the conservative design of the PA section.



Class A 75 W PEP IMD

IV. Class-A SSB Operation

Exclusively available on the MARK-V FT-1000MP, a press of a front-panel button engages Class-A SSB operation of the transmitter, at a power output level of 75 Watts. Class-A operation produces incredibly clean signal quality, with 3rd-order IMD suppressed 50 dB or more, and 5th- and higher-order products typically down 80 dB or more!

V. Multi-Function Shuttle Jog Tuning/Control Ring

The immensely-popular Shuttle Jog tuning ring, which is concentric with the Main Tuning Knob, has a new look in the MARK-V: it now includes the activation switches for the VRF (left side) and IDBT (right side) features, so you don't have to move your hand position to activate these important circuits during contest or pile-up situations!

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14.205.55
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FT-1000MP MARK-V
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IPO
EDSP
LSB
USB
CW
AM
FM
RTTY
PKT
VRF
IDBT
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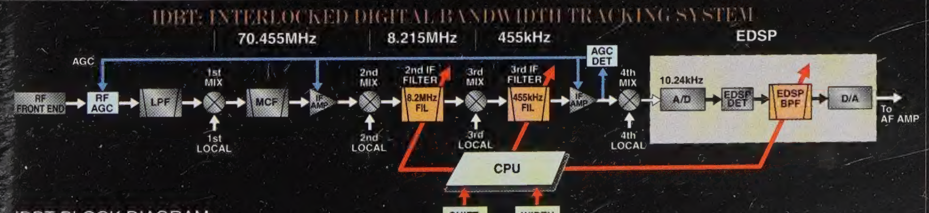
SUB VFO-B
SHIFT
WIDTH
NOTCH
CLAR

.30 V / 13.8 V
wer Supply FP-29

Photo shows optional MD-100A8X Deluxe Desk Microphone

HF 200 W All-Mode Transceiver

MARK-V FT-1000MP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70.455MHz
8.215MHz
455kHz
EDSP
AGC
AGC DET
RF FRONT END
RF AGC
LPF
1st MIX
1st LOCAL
MCF
IF AMP
2nd MIX
2nd LOCAL
2nd IF FILTER
8.2MHz FIL
3rd MIX
3rd LOCAL
3rd IF FILTER
455kHz FIL
IF AMP
4th MIX
4th LOCAL
10.24kHz
A/D
EDSP DET
EDSP BPF
D/A
To AF AMP
CPU
SHIFT
WIDTH

IDBT BLOCK DIAGRAM

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> ...the IC-718 was very easy to operate with a minimum of "manual" intervention.
>
> *QST, July 00*

> The ICOM IC-718 offers a nice collection of the more desirable features that are typically absent from transceivers in its price class.
>
> *QST, July 00*

Makes Getting into HF a Piece of Cake.

The New Easy to Use IC-718

Whether you're new to HF or just looking for a capable second rig, the IC-718 is for you. It's simple. Buttons for the functions you use the most are prominent and easy to access. Selecting a frequency is as easy as punching in the numbers on the large, well spaced, keypad. And you can quickly tune up or down a band with the auto tuning step feature. It even has a band stacking register to "remember" your last used frequency. It's superior. The '718 features a continually adjustable noise blanker - a feature some high-end rigs don't even have. The IF shift helps reject nearby interference. And with the optional UT-106 installed, you can enhance the superior receiver performance with Digital Signal Processing (DSP). The Auto Notch Filter minimizes noise without compromising receive audio. A full 100 watts (40w AM) of adjustable power keeps you on the air for extended periods. Talk hands-free with the VOX feature. And a built-in keyer for CW enthusiasts. All this and more in a compact, easy to carry little package. Simple. Superior. Piece of cake.

ICOM IC-718
HF TRANSCEIVER
MODE FIL TS
MIC PHONES PWR AF-RF/SQL RIT-SHIFT LOCK

Easy to use. Buttons for the functions you use the most are prominent and easy to access - everything is right there in front of you!

Optional DSP capability. With the optional UT-106 installed, you can enhance the superior receiver performance with Digital Signal Processing (DSP). The IC-718 is the only rig in its price range to offer you the choice!

IC-718 features

- Simple Operation
  - One Touch Band Switching
  - Direct Frequency Input via 10 Button Keypad
  - Auto Tuning Steps (TS). Senses the rate the knob is turned
- Easy to Use Front Panel Controls
- Microphone Compressor
- IF Shift
- 100w of Power (40w on AM)
- Meter Functions (Output Power, ALC, VSWR)
- Built-in Keyer with CW reverse
- VOX
- Large Front Firing Speaker
- Optional FSK Operation
- Adjustable Noise Blanker
- Latest RF & Digital Technology
- Optional DSP with Auto Notch
- Optional Voice Synthesizer

WORK THE MAGIC ICOM

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